GOPHER PEAVEY

1937

The 1937 Gopher Peavey

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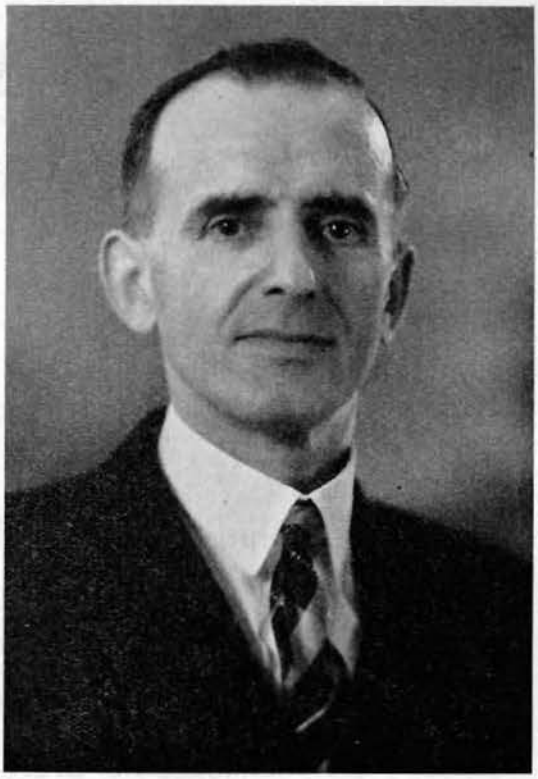
University of Minnesota

ST. PAUL, MINN.

"What does he plant who plants a tree?
He plants cool shade and tender rain,
And seed and bud of days to be,
And years that fade and flush again;
He plants the glory of the plain;
He plants the forest's heritage;
The harvest of a coming age;
The joy that unborn eyes shall see ---
These things he plants who plants a tree."

HENRY CUYLER BUNNER

CLAUDE H. ALLEN



WALTER E. DAY

Dedication

To

The Honorable Claude H. Allen

and

The Honorable Walter E. Day

The 1937 Gopher Peavey is dedicated in grateful appreciation of their outstanding interest in forest education and their unselfish and effective devotion to public service.

Foreword

Thru confusions of days,
of sleepless nights,
of praise and ridicule,
comes this Peavey of 1937.

It makes no pretensions of supremacy.

It does not, even, presume to be great.

But if it does, even in small measure, serve to more effectually bind together the Foresters of the University of Minnesota, we shall think our work well done.

The Peavey Staff.

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Architect's sketch of the proposed Forestry Building at the University Farm Campus

A Dream Come True - -

Over 56 years ago Dr. William Watts Folwell, then President of the University of Minnesota, discussed with the Regents of the University the advantages of establishing a separate and distinct school of forestry. Almost exactly 40 years ago Professor H. H. Chapman graduated from the School of Agriculture after having completed the courses in forestry offered by Professor Samuel B. Green. Shortly thereafter a curriculum in forestry was developed from which the first student was graduated in 1903.

In a very real sense, therefore, the University of Minnesota has pioneered in forest education. The Division of Forestry, consequently, has enjoyed the opportunities and borne the hardships and vicissitudes that are the portion of the educational pioneer. During the past twenty years the enrollment in forestry has steadily increased and the scope of forestry activities has broadened but there has been little increase in facilities at University Farm.

On April 24, 1937, Governor Elmer A. Benson placed his signature on a Bill providing $250,000 for the erection of a forestry building at University Farm to provide facilities for teaching and research in forestry. The provision of these facilities is without question the most significant advance in forest education in the history of the Minnesota forest school.

A four story building approximately 70 by 175 feet is contemplated. This building will house both the Division of Forestry and the Lake States Forest Experiment Station, United States Department of Agriculture. The proposed building will not be elaborate, but emphasis is placed on meeting existing and probable future instructional and research needs.

SENIORS

AXEL L. ANDERSON
Askov, Minnesota
General Forestry
Forestry Club, Tau Phi Delta, Gobblers, Y. M. C. A., Grand View College, Des Moines, Iowa.

EDWIN R. ANDERSON
Duluth, Minnesota
General Forestry
Forestry Club, Tau Phi Delta, Gobblers, Y. M. C. A., Duluth Junior College. Field Experience, F. W. Paine Farm, Duluth, Minnesota.

VICTOR C. ANDERSON
Willow City, North Dakota
General Forestry
Forestry Club, Y. M. C. A., Voyageurs. Field Experience, Minnesota State Forest Service, Pequot, Minnesota; Independent Logging, Pequot, Minnesota.

THEODORE C. APPEL
"Horse"
Duluth, Minneosta
General Forestry
Forestry Club, Duluth Junior College.

DWIGHT W. BENSEND
"Ben"
Turtle Lake, Wisconsin
General Forestry
Forestry Club, Xi Sigma Pi. Field Experience, Forest Survey, Lake States Forest Experiment Station, '36.

NORMAN BORLAUG
Cresco, Iowa
General Forestry
Forestry Club, Xi Sigma Pi, Alpha Zeta, Wrestling '34, '35, '36, '37. Field Experience, Northeastern Forest Experiment Station '36, '37.

VINCENT W. BOUSQUET
"Buckshot"
Maddock, North Dakota
General Forestry
Forestry Club, Tau Phi Delta, Gobblers, Y. M. C. A., President Freshman Corporation '34, Freshman Football, Ag. Student Council '34, '35. President Ag. Student Council '36, '37, All-University Council '35, '36, '37, Silver Spur '35, '36, Grey Friars '36, '37. Foresters Day '35, '36, '37. Field experience, Chippewa National Forest '35.

FLOYD F. CLARK
"Bud"
Duluth, Minnesota
General Forestry
Forestry Club, Tau Phi Delta, Gobblers, Freshman Swimming Team, Foresters Day '37, Duluth Junior College. Field Experience, Great Lakes Transit Work; Superior National Forest '36; Refined Canoe Trip Guide.

CARL R. DION
St. Paul, Minnesota
Forest Sciences
Forestry Club, Treasurer '37, Chairman Forestry Club Dance '36, Photo Editor Peavey '37, Voyageurs, Glee Club, Forester's Day '36, '37. Field Experience, Photo Assistant in Pacific Coast Forests '31, '32, '36.

ROY W. EGGEN
Green Bay, Wisconsin
General Forestry
Forestry Club, Y. M. C. A., Alpha Gamma Rho, Alpha Phi Omega. Field Experience, Wisconsin Conservation Department.

RALPH E. EISELE
Minneapolis, Minnesota
General Forestry
Forestry Club, Y. M. C. A., Scabbard and Blade. Field Experience, Kaniksu National Forest '35.

JOSEPH P. FALBO
"Smokey"
Hibbing, Minnesota
General Forestry
Forestry Club, Hibbing Junior College, Ranger's Club, Y. M. C. A., Intramural Touchball.

JAMES N. FISHER
Eau Claire, Wisconsin
General Forestry
Forestry Club, Varsity Rifle Team '36, '37. Field Experience, cultural work on private estate, Eau Claire, '34, '35, '36.

JOHN GELBMAN
St. Paul, Minnesota
General Forestry
Forestry Club, Y. M. C. A.

CUTHBERT F. GRAFTON
"Bill"
Miller, South Dakota
General Forestry
Forestry Club, Scabbard and Blade, Cadet Council '35. Field Experience, U. S. Coast and Geodetic Survey '34; South Dakota Relief Administration '35; Cadet Camp, Fort Sheridan, Ill., '36; Cross River C.C.C. Camp '36.

CLAYTON B. GRANROS
Leoneth, Minnesota
General Forestry
Forestry Club. Field Experience, E. C. W. work, Itasca Park '36.

ROBERT L. GOUDY
"Bob"
Seaforth, Minnesota
General Forestry
Forestry Club, Hibbing Junior College, Tau Phi Delta, Gobblers.

ALVIN T. HAGEN
"Al"
Minneapolis, Minnesota
General Forestry
Forestry Club, Voyageurs, Y. M. C. A., Delta Upsilon, Alpha Zeta, Xi Sigma Pi, Freshman Corporation President '35, Junior Corporation President '36, Forestry Club President '36, Student's Council '36, Forester's Day '36, '37, Christmas Assembly '35, '36. Honor Case Committee. Field Experience, Field Work U. S. D. A. Bureau of Plant Industry, Barberry Eradication; University of Minnesota Soil Survey; Lake States Forest Experiment Station, Shasta National Forest '37.

E. ARNOLD HANSON
Bottineau, North Dakota
General Forestry
Forestry Club, Xi Sigma Pi, Alpha Zeta, Voyageurs, Forester's Day '36, '37. Y. M. C. A., Ag. Student Council President '37, All University Council '37, Gopher Peavey Circulation Manager '37, North Dakota School of Forestry. Field Experience, State Forest Nursery, Bottineau, North Dakota, '31, '32, '33, '35; Forest Survey, Lake States Forest Experiment Station '36.

HOWARD HASS
Minneapolis, Minnesota
General Forestry
Forestry Club. Field Experience, Soil Conservation Service '36, '37.

GUY W. HAWKINS
Brainerd, Minnesota
General Forestry
Forestry Club, Forester's Day, '36, '37, Y. M. C. A. Field Experience, Minnesota Forest Service '33-'36.

HAYDEN M. JENSEN
"Jens"
St. Paul, Minnesota
General Forestry
Forestry Club, Scabbard and Blade, Cadet Officers Club, Voyageurs.

RAYMOND JENSEN
"Jens"
Cloquet, Minnesota
General Forestry
Forestry Club, Duluth Junior College. Field Experience, Cloquet '36.

DOUGLAS J. JOHNSON
Minneapolis, Minnesota
General Forestry
Forestry Club, Forester's Day '35, '36, '37, Junior Corporation Treasurer '36, Tau Phi Delta, Gobblers, Y. M. C. A.

PHILIP N. JORANSON
Chicago, Illinois
Forest Sciences
Forestry Club, Xi Sigma Pi, Alpha Gamma Rho, Y. M. C. A., Wesley Foundation, Cosmopolitan Club.

CHARLES H. KIRK
"Snorky"
Slater, Missouri
General Forestry
Forestry Club. Field Experience, Chippewa National Forest '35, Superior National Forest '36.

JOSEPH KISSIN
St. Paul, Minnesota
General Forestry
Forestry Club, Xi Sigma Pi. Field Experience, Forest Survey, Lake States Forest Experiment Station '34, '35.

WILLIAM A. MCFARLAND
"Mac"
Ely, Minnesota
General Forestry
Forestry Club, Ely Junior College, Wesley Foundation. Field Experience, Forest Guard, Superior National Forest.

GEDDES E. MCMILLAN
Mankato, Minnesota
Game Management
Forestry Club, Mankato State Teachers College '34-'35, Y. M. C. A., Wesley Foundation, Alpha Gamma Rho, secretary of 1936 session of Itasca Park Forestry and Biological Station.

HARRY S. MOSEBROOK
"Moose"
St. Paul, Minnesota
General Forestry
Forestry Club, Tau Phi Delta, Gobblers, Forester's Day '36, '37. Field Experience, Snoqualmie National Forest, Washington, '34; Superior National Forest '35; Wayne National Forest '35; N. Rocky Mountain Forest and Range Experiment Station '36.

FRED R. MUELLER
Minneapolis, Minnesota
Forest Technology
Forestry Club, Xi Sigma Pi, University of Minnesota Chess Club, All-University Chess Champion '35. Field Experience, Chippewa National Forest '35.

GEORGE F. MUELLER
"Shiner"
Hamburg, Minnesota
General Forestry
Forestry Club, Y. M. C. A. Field Experience, Chippewa National Forest '35.

THEODORE O. MYREN
Superior, Wisconsin
General Forestry
Forestry Club, Xi Sigma Pi, Y. M. C. A.

EUGENE C. NELSON
Homer, Minnesota
Forest Technology
Forestry Club, Xi Sigma Pi, Voyageurs, Y. M. C. A. Field Experience, Chippewa National Forest 36.

BERNIE PETERSON
Rugby, North Dakota
General Forestry
Forestry Club, Alpha Zeta, Xi Sigma Pi, Gamma Sigma Delta, Punchinello, Secretary-Treasurer Freshman Corporation '33, Secretary-Treasurer Junior Corporation '35, Gopher Peavey '35, Honor Case Committee '35, Junior Marshall '34. Field Experience, Superior National Forest '34; Soil Conservation Service '35, '36.

SAMUEL S. POIRIER
Duluth, Minnesota
General Forestry
Forestry Club, Duluth Junior College, Tau Phi Delta, Gobblers, Gopher Peavey '37, Ag. Campus Chorus. Field Experience, Superior National Forest '34, Yellowstone Park '36.

DUANE RAUENHORST
"Chief"
Fulda, Minnesota
Commercial Lumbering
Forestry Club, University Rifle Team '33-'36, Tau Phi Delta, Gobblers.

JOHN S. RISS
"Sim"
Worthington, Minnesota
General Forestry
Forestry Club, Tau Phi Delta, Gobblers, Forester's Day '36, '37, Gopher Peavey '36, Freshman Corporation Steward '32, Pi Phi Chi. Field Experience, Nicolet National Forest '33, '34, '35, '36, '37.

JOHN E. SAUER
"Ole"
Tolley, North Dakota
General Forestry
Forestry Club, Voyageurs, Forester's Day '36, '37. Field Experience, State Nursery, Bottineau, North Dakota '30; Foreman at Lake States Forest Experiment Station, Denbigh, North Dakota, '33-'34; Forest Survey, Lake States Forest Experiment Station '34-'35; Shelterbelt Project, Jamestown, North Dakota, '35; Inspector, Tunnel Division, United States Engineering Department, Fort Peck, Montana.

THOMAS A. SCHRADER
Worthington, Minnesota
Game Management
Forestry Club, Voyageurs, Forester's Day '37. Field experience, State E. C. W. Camp '35, 37.

ROMAN A. SCHWARTZ
St. Paul, Minnesota
General Forestry
Forestry Club, Voyageurs. Field Experience, Minnesota State Forest Service.

CHARLES FRANK SHEARER
Minneapolis, Minnesota
Commercial Lumbering
Forestry Club, Tau Phi Delta, Gobblers, Xi Sigma Pi, Forester's Day President '37. Field Experience, Sales, White River Lumber Company, Enumclaw, Washington.

BERNARD J. SHEMA
Minneapolis, Minnesota
General Forestry
Forestry Club, Ag. Student's Council '35, Tau Phi Delta, Gobblers.

RICHARD C. SMITH
St. Paul, Minnesota
General Forestry
Forestry Club, Tau Phi Delta, Gobblers, Xi Sigma Pi, Gopher Peavey Editor '37, Associate Editor '36, Forester's Day '37, Ag. Union Board of Governors '36, '37. Field Experience, Mesaba Purchase Unit '33; Chippewa National Forest '33; Superior National Forest '34; Lake States Forest Experiment Station, Forest Survey '34, '35; Nicolet National Forest '35; N. Rocky Mountain Forest and Range Experiment Station '36.

ALVAN C. STEARNS
Norfolk, Nebraska
Forest Sciences, Botany
Forestry Club, Norfolk Junior College, Y. M. C. A., President Pioneer Hall '35, '36, Pershing Rifles '34, Forester's Day '37. Field Experience, Shelterbelt Research in Kansas, Oklahoma and Texas; Lake States Forest Experiment Station '36.

FARQUHAR M. THOMSON
"Sparky"
Duluth, Minnesota
General Forestry
Forestry Club, Voyageurs, Wrestling, Duluth Junior College. Field Experience, Superior National Forest '34, '36.

CLINTON O. TURNQUIST
Minneapolis, Minnesota
General Forestry
Forestry Club, Tau Phi Delta, Gobblers, Xi Sigma Pi, Forester's Day '35, '36, '37, Y. M. C. A. Field Experience, Division of Soils, University of Minnesota '36.

LAWRENCE L. WILSON
"Larry"
Minneapolis, Minnesota
Game Management
Forestry Club.

B. FRANCES KUKACHKA
Montgomery, Minnesota
Forest Sciences
Forestry Club, Tau Phi Delta, Gobblers.

HAROLD ROUSSOPOULOS
St. Paul, Minnesota
General Forestry
Forestry Club, Voyageurs, Forester's Day, Freshman Corporation Steward '34.

FACULTY

R. W. Lorenz

E. G. Cheyney

J. H. Allison

A. J. Bailey

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HENRY HANSON

HENRY SCHMITZ

L. W. REES

R. M. BROWN

Foresters and Citizenship

by Ellery Foster, '28

AN INVITATION to write for The Peavey is an opportunity to shed the check reins and hobbles of official duty, and gallop off as an individual alumnus, let out to pasture among friends.

A most interesting subject to me, is the picture of forestry and foresters affected by the forces of economic and political strife. Since the skies fell in 1929 I have been increasingly interested in that broad picture.

Chaotic times it is with the lines of conflict sharply drawn between political democracy, fascism, communism. Turmoil, with labor and capital clashing, millions insecure in their jobs, millions more jobless, on one side, and thousands fabulously rich on the other. Topsy-turvy times with too much money for speculation, too little for consumption. Tempestuous times with new concepts of governmental functions, and one arm of government smashing down what another arm has built up. Turmoil with the realignment of political affiliations. Uncertain times with science plucking not only white rabbits, but strange new creatures and processes, out of hats everywhere.

Today, lignin is the "forest enigma" of chemistry. Hook the right thing on its lone oxygen atom and lo, perhaps you have rubber! Do something else to it and who knows what industrial products may result and what the economic consequences may be.

Forestry is not under a bell jar, protected from all this. Nor does it live in a monastery or have a charmed life or a rabbit's foot or winged heels by which it can hope to be better than, or get far ahead of the times. Progress in forestry cannot exceed social progress.

Moreover, what boots it to have sustained yield if the mills are sweatshops and exploiters of labor? Better cut out and get out quick so the people can get on relief. Or to have profitable forestry if the profits merely accumulate to exert unhealthy pressures on the investment market? Or raise trees just to make premature coffins for people killed in wars or revolutions?

These may be classed as "extra-curricular" thoughts. I trust the pages of The Peavey are open to such thought. Thinking them, the question comes up, what interest and what part do foresters play in these larger problems?

Successful democracy, however, apparently requires that people take an active interest in broader problems than those of purely individual interest. Social introversion doubtless explains a large part of our troubles.

It may be argued that as an implied criticism this observation has little application to foresters; their work is not selfish, but dedicated to the common welfare. Foresters, it can be pointed out, probably put in more overtime than any other group in public service. Surely they are as good citizens as can be found.

But are they? Who is to say whether devotion to the job arises from interest in the public good, or from selfishness? Good citizenship implies more than professional proficiency. Is it good when absorption with his job keeps a man from reading and discussing the major conflicts of his time, keeps him from knowing enough about them to take sides intelligently?

For most of us there is less financial gain in becoming informed and intelligent citizens than there is in being a good employee. This puts the burden of proof on professional men in general, whether they are not self-seeking rather than self-sacrificing in keeping their noses so everlastingly on the grindstone that they don't have time to understand the major issues with which democracy is wrestling.

For example, we foresters alone cannot solve America's forestry problems. We can merely offer solutions. It is up to the democratic majority to accept or reject. To do this intelligently it must understand. It cannot understand if individuals give serious thought only to getting ahead in their specialized fields.

I am not one to argue that being a good citizen is a duty—patriotic, sacred or otherwise. A man's duty is what his own morality tells him it is. But I believe many foresters have a sense of duty about citizenship. If they have read this far, they probably are wondering what I think a man having such a sense should do about it. Moreover, I am averse to winding up and merely leaving the reader a moral puzzle to wrestle with. A writer feels like a much more constructive individual if he ends by making specific suggestions or recommendations, even if he knows they are never followed. So following are some pertinent suggestions:

One, in trying to keep informed on the chief questions of our times, let us by all means exercise discrimination in turning to sources of information. Inquire into the selfish interests of those who control or finance a given press, radio, cinema or platform.

Two, try to use independent judgment in interpreting what we hear and read. Consider what axe the speaker or writer has to grind.

Three, appraise America less in relation to other countries and more in relation to what we might be in view of our resources, technology, isolation and other advantages.

Four, cultivate a realistic attitude toward our economic plutocracy. Don't be fooled by the flattering and misleading nomenclature which borrows the name "democracy" from our political system and applies it to our very undemocratic business system; study economic plutocracy's impact upon individuals and groups and upon our political and social structure.

Five, weigh the two viewpoints, one that views labor merely as a commodity to be bought according to the laws of supply and demand, the other viewing it as humanity entitled to be employed and paid in proportion to its ableness and willingness to serve.

Six, nurture a resistance to middle-class indifference. Strive to think and react as a member of the human race, and not merely as a chance dweller in one of its richer strata. Don't ignore injustice and unequal opportunity. Though they may touch us but lightly now, they are diseases that neglected, destroy civilizations.

The South and Private Forestry

by A. E. Wackerman '21,
Forester, Southern Pine Association

MUCH progress has already been made in timber growing by private forest owners in the southern states, and the cultivation of pine timber as a crop is rapidly expanding. The many favorable climatic and soil conditions combined with extensive areas of southern pines and hardwoods make forestry of unusual importance in the economy of the South. Selective cutting is commonly practiced by a considerable number of both large and small lumbering concerns that actually select and mark the trees to be cut and, what is most important, select trees for cutting with particular regard to leaving a properly spaced healthy, growing stand.

Indicative of the widespread practice of timber growing in the South is the large area being protected against fire by the private owners, the States and the Federal government cooperating. According to Regional Forester Kircher, of Atlanta, over sixty million acres are so protected in the South. It is obvious that unless the owners of timberland were growing timber and retaining ownership for continuous forest cropping they would not voluntarily pay several cents per acre for fire protection which is primarily for the protection of immature trees.

Interest in private forestry is realistic and business-like and not a form of nature-loving. Already second-cuttings are being made on a large scale and in many cases timber is being harvested for the third and fourth time from the same areas. With such actual evidence of pine timber growth, it is now well known to every one that timber can be handled as a crop. What makes forestry realistic in the Southern Pine region is the great variety of uses to which it can be put and the expansion of wood-using industries, such as pulp and paper. The rapid growth of pine timber plus the merchantability of small trees for pulpwood makes it possible to thin dense young stands, salvage waste in logging, and improve forests generally.

Most of the present stands of second and third growth Southern Pine grew up with but little, if any, protection or other cultural practices. With the opportunity now to thin and make improvement cuttings, and to make harvest cuttings for many different products including ties, pulpwood, posts, poles, saw-logs, together with naval stores possibilities in longleaf and slash pine forests, there should be a much greater yield of forest products in the future than is now being obtained.

Some conservationists and foresters are fearful that the rapid expansion of the pulp and paper industry along the Southern Pine seaboard will result in devastated forests and idle cut-over land. If pine forests were difficult to reproduce and of less rapid growth there might be some reason for such fears. But this is not the case. Pine timber over practically its entire range is a "natural" and it reproduces readily, even including longleaf pine which seeds less frequently than the others.

Fire protection, and in the case of longleaf pine, hog protection, is all that is required to reproduce Southern Pine satisfactorily. Once having reproduced, pines are well known to be able to endure considerable fire, so a fire is not so damaging as in many other localities. Even fungi and insects are not serious in Southern Pine forests.

A large and increasing demand for the products derived from Southern Pine trees, therefore, will stimulate forestry unless more than enough pine timber can be grown accidentally, in which event forest culture can only be crude. Actual values in the forest have always been the greatest stimulus to forestry, so realistic foresters look with favor upon the industrial expansion now gaining momentum in the South.

Wood is the basis of most new southern industrial development and as more and more units of the paper industry become established in the South, as other wood-using industries likewise expand, and as secondary wood-using plants set up close to the sources of primary production, the economic stimulus will be created that is essential to intensive forest management. There are, however, still some very fundamental problems to be solved in connection with timber growing in the South. Fire is still much too prevalent although state forestry departments in cooperation with the U. S. Government under the Clarke-McNary Act, the C. C. C., and the private owners have accomplished a great deal in reducing fires. Even so, much more intensive protection of all forest areas must be provided to reduce the fire hazard to a reasonable risk.

That the public generally does not appreciate timber as a basis of continued industrial activity and expansion is indicated by the U. S. Forest Service forest fire statistics which show for the year 1935 on the State and private protected areas in the eleven southern states (excluding National Forests), that 27,084 fires occurred burning 1,425,050 acres, and that incendiarism caused 44 per cent, smoking 17 per cent, which with other forms of public carelessness with fire in the woods, caused a total of fully 95 per cent of the fires, while lumbering caused only 2 per cent. A tremendous job exists, therefore, in educating the local and general public in even the first principle of forestry, which is fire protection. Only state and federal agencies can do this adequately.

Another matter that has yet to be satisfactorily solved is that of forest taxation. Many studies have been made and recommendations offered but somehow forest taxation is still quite unsatisfactory and discouraging to forest owners in most places. Forestry is not a highly profitable enterprise and such net returns as are to be received will come from only very small earnings per acre. Therefore, a few cents per acre more or less in taxes and other costs exert a tremendous influence and frequently mean the difference between a profitable undertaking and a bankrupt one. These are not insurmountable problems, though, and hand in hand with their solution will go greatly expanded, highly efficient and business-like technical forest management in which trained foresters must play an important role.

Forestry becomes, under such conditions, a highly specialized enterprise in that forest raw materials required by industries are produced in quantities. Foresters should be capable of assuming managerial responsibilities in large commercial timber growing undertakings. They will also, of course, take a prominent place in fields of public

forestry and cooperation with private owners. Foresters should not overlook, either, the highly attractive possibilities of themselves owning forests.

Large timberland holdings comprise only a small proportion of the total timber area in the South. Most of the forest land is held by small owners. Farmers as a group, according to the Copeland Report, own about one-third of the merchantable timber land, and this does not include the great number of small tracts not in farms. There is plenty of forest land in small parcels, therefore, that foresters could purchase and upon which they could practice forestry. Since foresters are trained to grow and manage forests and since Southern forests are so readily responsive to management it is probable that some foresters will gradually build up thier own forest properties and so become forest owners in their own right.

Private forest ownership is of great importance to the profession of forestry in that when the economic environment is favorable for sustained yield management of private forests, then foresters will have available to them in their choice of a career the full range of opportunities in forestry. Federal and state forestry undertakings will be only one of several fields. Because the South holds much promise of greatly expanded private forestry it offers very real opportunties for foresters who can pioneer in their profession.

—By Courtesy of American Forests

Can Trees Survive the Drought Conditions of the Northern Great Plains?

Ernest J. George, '28
Associate Silviculturist, Bureau of Plant Industry
United States Department of Agriculture[1]

TREE planting on the northern Great Plains has been practiced for the last 60 or 70 years. The earlier plantings were chiefly of a woodlot nature, but plantings of the last 30 years have been chiefly for protective purposes. Interest in productive tree plantings has been stimulated the last two years by practices of strip planting to prevent wind erosion and to ameliorate drought conditions somewhat by preventing snow being blown into coulees with its consequent loss of moisture for farm crops.

The purpose of this article is not to discuss whether or not trees will prevent wind erosion and mitigate drought conditions but whether it is possible for trees to be established and to survive for a period of years under the prevailing climatic conditions. The northern Great Plains will be understood to comprise the western half of North and South Dakota, the Plains portion of Montana, and that part of Wyoming lying east of the Continental Divide.

Previously a Forested Area

The northern Great Plains has not always been a treeless area. Huge trees comparable in size to those found on the Pacific Coast today once flourished, as evidenced by the petrified stumps found in the Bad Lands of southwestern North Dakota. Further evidence of forest growth, if such is needed, may be found in the lignite coal beds of western North Dakota. In an article by A. L. Leonard, of the University of North Dakota, which appeared in the North and South Dakota Horticultural Magazine some few years ago, the whole mass of lignite of western North Dakota is described as being made up of 75 to 85 percent of coniferous trees including varieties closely related to sequoia, cypress, juniper, arbor-vitae, and some firs and spruces.

What happened to destroy these old-time forests and bring about the treeless prairies of today? At best we can only surmise and offer the explanation of a gradual change in climate with decreasing precipitation and possibly periods of prolonged drought in which transpiration and evaporation played an important part. Forests were gradually crowded out by the grasses, owing to the greater height of the trees and consequently greater exposure to transpiration and evaporation during times of decreasing rainfall. In the American Forests magazine of December 1936, W. T. Cox suggests as an explanation of the prairies "that the most adverse weather cycle or most severe drought occurring over a long period of time in any region determines the character of vegetation in that region." Regardless of the cause, the northern Great Plains of today is devoid of tree growth except along streams, coulees, and small isolated areas on which small

1. Mr. George is in charge of shelterbelt investigations at the Northern Great Plains Field Station, Mandan, N. Dak.

stands of deciduous and various stands of coniferous species are found.

Recent Climatic Conditions

A glance at weather records of the present day may help us to realize why the treeless condition of the Plains has come about. According to records at the Northern Great Plains Field Station, Mandan, N. Dak., which is situated in the Plains area, the average annual precipitation for the years 1916-36 was approximately 14.25 inches. The maximum precipitation in any one year was 20.30 inches and the minimum was 6.43 inches. Evaporation from a free water surface for the six months April to September, inclusive, during the 1916-36 period averaged practically 35 inches. The maximum evaporation in any one six-month period was approximately 47.25 inches and the minimum was approximately 29 inches. The highest evaporation in any one month was over 12.50 inches. Temperatures during the same period have ranged from a high of 115 degrees Fahrenheit, to a low of —46 degrees. Temperatures of over 100 degrees have been recorded on 13 days in one month, 8 of the days being consecutive. It is small wonder that many of the species which left their fossil identifications in the rocks of North Dakota have now entirely disappeared from that area.

During the years 1892-1915 for which precipitation data are reported in the Climatic Summary of the United States, Section 34—Western North Dakota, for Medora, N. Dak., a point some 5 miles distant from where the tree was felled, the drought years of 1897 and 1904 which had approximately 5.5 and 7 inches precipitation, respectively, below the average for the period, are shown very prominently by the narrowness of the growth rings for those years. On the other hand the heavy precipitation in 1909 of over 10.5 inches above the average for the period did not result in any marked difference in the width of the growth ring from those of the years immediately preceding or following that year.

Some foresters consider, and probably very rightly so, that 18 inches is the minimum annual precipitation needed in the area for tree growth sufficiently successful to break the monotony of the treeless plains and afford shelter from devastating winds and drifting snow. If such is the case, it would appear that tree planting is not likely to meet with any degree of success in an area which has 3 or more inches less rainfall than that needed for reasonable growth and survival. It is therefore quite natural to ask whether trees can be established and grown for a period of years under such unfavorable conditions.

Development of Drought Resistance by Certain Trees

A few comments on some of the factors that determine drought resistance in plants might help us to understand why some trees, if such there are, have become established and grown successfully for a period of years in this area.

Drought resistance varies widely in plants and appears to be rather a combination of several factors which bear somewhat similar relations toward the result. The supply of moisture present in the soil may not in itself be the limiting factor. Its effect is modified by the prevailing temperature at the time and by the soil type in which the plant is growing. In other words, a plant will exhibit more drought resistance on a stated amount of moisture in a given soil type when extremes of temperature do not prevail. Heavy compacted soils and so-called "hardpan" soils prevent proper root pene-

tration, owing to greater run-off and less absorption of the limited rainfall. Certain species develop only very shallow root systems even in favorable soil. These species quickly suffer from drought in comparison with those species which have their roots extending down into layers not subject to surface evaporation.

In the matter of drought resistance, certain plants have developed special adaptations which enable them to survive with very limited moisture. Examples of these are the cacti and yucca, both of which are native to the northern Great Plains. Most plants adapt themselves to certain soil types and will thrive on the favored type on a given amount of moisture, when like plants on different soil types nearby are severely injured or die out entirely. The origin of the planting stock may also have an important influence on the ability of a plant to withstand prolonged drought conditions. Seed collected from parent plants growing under such climatic conditions is likely to produce more hardy stock than seed collected from parent plants which are growing under more favorable moisture conditions.

The type of planting in which the particular species is growing may also affect the ability of the plant to withstand drought to a certain degree. Species grown in plantings that are reasonably dense, thereby cutting down the transpiration from the plant and evaporation from the soil, often show complete absence of drought injury when similar species of like age in open stands are severely killed back or entirely dead. In the Forest Worker of September 1932, H. L. Shirley of the Lakes States Forest Experiment Station reports on a study of the effects of the 1930 drought on pine and swamp forests in Minnesota as follows: "Drought losses in pine forests decreased in severity with increasing height and density of reproduction." "Poorly stocked stands which could least afford losses suffered most severely from the drought."

Drought resistance is therefore a complex problem, and for the purposes of this article the trees recommended as being drought resistant are those which have proved the most hardy under a wide range of composite factors. It must be constantly borne in mind, however, that on certain localized sites, species not classed as drought resistant have proved more hardy than the so-called drought resistant species.

Planting on the Great Plains

The earliest tree plantings on the northern Great Plains were planted under the Timber Culture Acts of 1873 to 1878 followed by railroad plantings along the rights of way across North Dakota in the late 1880's. Very little or no planting was done in Montana and Wyoming until after 1910, owing to most of the Plains portion of those States being public land previous to that time. The majority of groves which sprang up as a result of the Timber Culture Acts and railroad plantings were composed chiefly of cottonwood, boxelder, ash, willow, and some maple.

Many of the groves were planted in sod, received little or no protection against livestock and fire, and probably not much cultivation. Mortality was therefore high from causes other than lack of resistance to drought. Ash species have proved the most hardy, followed by boxelder, cottonwood, and maple. A few of the old timber claims and railroad plantings have been protected against livestock and

fire and are in reasonably good condition today.

Some of the drier sections of the Plains contain stands of native ponderosa pine and red cedar. These stands have suffered no severe losses, and many of the trees have made considerable growth. Ties for building the Northern Pacific railroad across the western part of North Dakota were obtained from a stand of ponderosa pine in that State. The red cedar has provided a continued source of supply of fence posts for farmers in those areas in which it grows. Stands of reproduction now present assure a source of supply of both species for some years to come.

Experimental Work

Probably the most intensive study of tree planting on the northern Great Plains is that conducted by the United States Department of Agriculture at the Northern Great Plains Field Station, Mandan, N. Dak. Tree investigations have been conducted at the station since 1914, and cooperative tree work with several thousand farmers in the area has been under way since 1916. Species are first tested for drought hardiness and other factors at the station, which has a block of land of very uniform site quality particularly adapted for this purpose. A large number of native and introduced species have now been under test for varying periods of years, and a number of the more hardy species have been further tested on farms under a wide range of soil and climatic conditions.

As a result of these studies, which include 1 year of annual precipitation of less than 6.5 inches, 2 years of less than 8.25 inches, 3 years of less than 10.5 inches, 5 years of less than 12 inches, and 11 years of less than 14.5 inches, some very reliable data on drought resistance are now available. While the full effects of the severity of the 1936 drought, which commenced in August 1935 and continued through 1936, had probably not become fully apparent in the summer of 1936, the data collected at that time give reliable evidence when comparing drought resistance between species.

The deciduous species are fairly easy to establish, if good planting stock is used, and if the planting site has been summer fallowed for one or more years to store moisture. Coniferous species are much more difficult to establish, high survival being obtained only in years of low evaporation. Under the severe climatic conditions found on the northern Great Plains, we have to plant not what we like but what we feel reasonably sure will establish and survive. The worth of trees to the farmer on the treeless plains can not be estimated in dollars and cents. That certain species give reasonable assurance of being able to establish and survive satisfactorily over a period of years has been demonstrated beyond questionable doubt. With normal precipitation and hard work, most farmers can improve and protect the farm home with a belt of trees, in spite of propaganda to the contrary which contain quotations from Joyce Kilmer's poem that on the Plains "Only God can make a tree."

Toward a More Picturesque Speech or
Gems From the Opera

Collected by Mr. E. G. Cheyney

The following were taken from quiz papers of freshman Forestry students in General Forestry.

" . . . This was called a 'ban' forest. And that's what it meant, for if a serf got caught in it off ban his head or he was hung to the nearest tree . . . "

" . . . Japan is the seismologist's paradise. . . . "

" . . . Teat wood . . . "

" . . . The western coast has an almost unmentionable bit of forest . . . "

" . . . Forrest . . . " (This spelling used consistently!)

" . . . So farther inland the water would be stale or not as fresh as the rain on the coast where it was first let down . . . "

" . . . The warm Japanese current, which is full of moisture, blows on to the west coast of N. America . . . "

" . . . Therefore, in inland places water is not pure but second-handed . . . "

" . . . The air is like a spong . . . "

" . . . Air currants . . . "

" . . . The Tropical rain forests are 3 shelves, or consist of 3 distinct trees, each shorter than the other . . . "

" . . . In the Matto Grasso trees grow one under the other . . . "

" . . . Brazil is 3,000,000 sq. miles large . . . "

" . . . The islands of Tasmania and New Zealand have 30 million acres of timber between them . . . "

" . . . Australia has 150,000,000 sq. miles in national forest . . . "

" . . . There are 500 species of the genies . . . "

" . . . Thus making it a Tropical Rain Forest, being many stories high . . . "

" . . . The height of these forests depends upon their location . . . "

" . . . A Tropic Rain Forest is found in the Amazon River bed near the coast . . . "

" . . . The timber itself is not of much practical value because of the inconsistency of the wood . . . "

" . . . The forests of Australia are not larger because there is a scarcity of lumber in Australia . . . "

" . . . The greater part of the usable forests in Brazil are located on the Atlas Mts. in the North end of Africa . . . "

" . . . They were stolen, swiped, cut and denuded by other countries . . . "

" . . . They will however continue to sexport cork . . . "

" . . . Italians and Greeks have slaughtered all available timber . . "

" . . . When the dominate trees are big enough they lumber them . . . "

" . . . Selection system is a system used in thinning trees . . . "

" . . . Brahmaputra is a long region up along the Ganges river in India . . . "

" . . . The Feudal System, was land given by the emperor and he in turn given land to lower lords they all get this land in return for their services to his higher lord . . . " (!)

" . . . The carrying power of water is equal to the 64 power of the velocity . . . "

" . . . The forests of Japan are heavily forested . . . "

" . . . The kings, dukes, earls, Barons each had "band" forests where only they were allowed in them . . . "

" . . . The forests above 5000' have not as yet been excavated . . . "

" . . . Example if a man cross another for so many year the owner doesn't object then the owner cann't keep up a fence across the Path for it known as right of users . . . " (This finally got me!)

" . . . The trees of Japan are of different gender . . . "

" . . . Brahmaputra is the forests of the Brahamas . . . "

" . . . Brahmaputra is a river in India that flows from the Indian Ocean across India into the Himalaya Mts. . . . "

" . . . Monsoon is the place in Germany where a forest school is established . . . "

" . . . Monsoon is a river located in Southern India, used for drainage . . . "

" . . . Brahmaputra is a river in India, used for drainage . . . "

" . . . Monsoon is a hard driving rain having lots of wind in it . . . "

" . . . Rights of Usury . . . "

" . . . Monsoon is the reforestation project in France . . . "

" . . . Schrubes . . . " (i. e., shrubs)

" . . . They don't use a lot of fuel. They will undoubtedly have good reproduction . . . " (The Japanese).

" . . . Monsoon is the time of the year when China has her heaviest rainfall . . . "

" . . . Early in 1000 A. D. some Arabs came thru part of Europe and conquered most of the European tribes . . . "

" . . . Conscious Reproduction is the dropping of millions of seeds by the trees themselves in an effort to reproduce more of their own kind . . "

" . . . The selection system is cutting the mature trees and then picking out the 500 best trees and by a gradual process of thinning the 500 trees are left remaining alone . . . "

" . . . It is so damp in Japan that even leather goods will mold in time . . . "

" . . . Bay of Bingo . . . " (i. e., Bengal).

" . . . After the Romans came and brought their roads and laws . . "

" . . . The Chines have been very wasteful . . . "

" . . . Brahmaputra is the name of the German Foresters Society . . "

" . . . Japan's forests have the same geni as American forests . . . "

" . . . The Pheasants were given the right to pick up leaves, dead sticks, and debris for fuel and bedding . . . "

" . . . Conscious Reproduction is reproduction that is really given great thought and the need is felt for it and it is reproduction really done well . . . "

Game Management in the Forest

Marius Morse, '35

THE term game management has come, within very recent years, to stand for something very definite in the mind of the present day forester. No longer is it enough to think of game management in terms of game reservations, shooting regulations, or "vermin" control. These were the popular original conceptions. It might be said that they indicated only a partial understanding of the situation. Today, game management, as a profession, is making measureable strides and is fast gaining in public favor.

There can be no doubt but that the forester and the game manager in their efforts to reap results for mutual benefit must evidence a definite willingness to work together in harmony. Each is concerned with an intelligent manipulation of factors for the conservation or wise use of a natural resource, but each must also accomplish this objective on the same land.

Forest game management, as the name implies, is concerned with wildlife inhabiting forest areas. It includes, properly, an attempt to survey or inventory a piece of forest land with its resident wildlife and then develop scientific means of modification of the wildlife environment for stabilizing the animal populations.

In most cases, practical controls for improvement of the wildlife habitat have simply not been devised. The "control" phase of management, which is wholly dependent upon facts and findings obtained from research, inventories, surveys, and census, is chiefly a consideration for the future. Present day game management must of necessity confine its efforts more to the inventory and census end than to actual practical controls, resulting in the improvement of existing conditions.

The game manager working in the field for only a short period of time soon becomes aware of the very seasonable nature of his work. He finds, for example, that there is only a comparatively short three week's period during which he must collect all the berries and seeds that will be needed for field planting or for the nursery. The time for censusing of "booming" pinnated grouse or "cooing" sharptails slips by altogether too quickly. There are many lakes to check in the spring for winter-killing of fish, and an accurate count is demanded, yet the lakes all open at practically the same time.

Since its inception in northern Minnesota in the summer of 1934, the forest game management program, fortunately, has been supplied with abundant man-power, in the form of C.C.C. labor, for carrying on its many varied forms of activity. Men are trained and organized into crews for work over as long a period as is required. Because of his transient nature and the relatively short span of time that a C.C.C. trainee will remain in a camp, great difficulty is experienced in maintaining a high degree of efficiency on the job. For the majority of jobs of a research nature, only a small crew is generally required. In the case of census work, it has

sometimes been found best to use the services of only a single skilled field hand.

A glance at the calendar year from spring through the summer, fall, and winter seasons reveals an interesting array of game management jobs, each of which must receive special consideration and careful thought. In most cases, precedent has not been set. There are few techniques to follow. There are more in need of development. The field is yet virgin, and it is not long before the game manager realizes that accomplishments on the job are going to depend largely upon his own resourcefulness and initiative.

The spring season, making its bow in the north woods about April 1, will find the game manager busily engaged in an attempt to census ruffed grouse over a limited sample area of forest land of probably four to six square miles in extent. Traversing some forty to sixty miles of "forty" line, the censusers carefully record in their field notebooks data on: number of birds flushed, flushing distances, color phases, location of the flushes, and environmental types. In the office, notes are later tabulated and used in a calculation of total grouse population. The final figure is assumed to represent the density of the game bird population throughout the forest in which the sample census area was located. Snowshoe rabbits are censused by using the same general method in slightly modified form.

The game food nursery is in need of development during the spring season. Beds must be prepared and sown to seeds of various game food plants. The production, on a large scale, of plants bearing "persistent" fruits is stressed. Such species might include mountain ash, bear-berry, wild holly, and wild rose. The 1—0 stock from last year's seed beds must be thinned out in some instances. Transplant beds are in need of preparation. Then there are rows and rows of cuttings to be lined out and set firmly in the soil. Red-osier dogwood, because of its great value as a deer browse food, is the species with which we are chiefly concerned. Numerous other species are still undergoing tests.

Planting of clover seed (either alsike or sweet clover) on exposed sites where there is reasonable assurance of its germination has been found to be a practical method for improving late fall and early spring food conditions for deer and ruffed grouse. If enough time is available, the game manager may seek to improve the food conditions in trout streams by introducing watercress seed at favorable sites. Once started, it will spread rapidly.

The presence of pinnated or sharp-tailed grouse somewhere in the forest area invites an attempt at some kind of census, crude though it may be. Mating ground antics by male and female birds offer a unique opportunity for counting these game birds during temporary concentration periods in late April or early May.

With the warming of the stream waters in early June, progress is at once underway towards improvement of creeks and rivers. Depending upon the nature of the work, the crew to engage in field work extending through the entire summer season may contain from four to perhaps forty men. The purpose of the work is to so modify the stream environment as to create a desired improvement in existing trout habitat conditions. Recognizing that cover, food, protection, spawning, or water requirements of trout are usually defi-

cient in some form or other, the game manager must devise means for improvement.

Each stream is considered as a separate problem. Control measures for building up stream deficiencies might include introduction of variously-shaped log or rock structures for speeding up the current, digging holes, or widening the channel. Log or brush shelters may be installed to increase the amount of cover and protection. For provision of pools to serve as resting places, dams are often advisable. The stream may even be lacking in spawning beds, in which case gravel would be artificially supplied where needed. Debris must be removed, to a certain degree, if it is found to be plugging the stream channel.

Most of the North Shore streams are peculiarly suited to a type of improvement, for example, that would do much to alleviate the unfavorable conditions for trout resulting from low water during the mid-summer months. The present picture is that of a surprisingly small volume of water (often excessively warm) flowing over a rocky stream bed varying in width from 15 to 150 feet. By a simple re-arrangement of rocks and boulders, a narrow channel can be constructed for confining the water and increasing its depth and velocity of flow. A stream may in this manner be converted from an uninhabitable summer habitat to a wholly productive one. Strangely enough, these rock structures are able to withstand the early spring flood waters.

Intensive survey of all important fish lakes and streams during the summer months is an important consideration that must be given priority over most phases of actual improvement work. This survey involves the collection of many types of data to be used, at some later date, in a diagnosis of the waters as a fish producer.

A crew of about eight men is subdivided into smaller crews for systematically sampling the lake bottom and the water, at different depths. Chemical analysis of all water samples taken determines oxygen, carbon-dioxide, and carbonate content, together with acidity. These tests are made in the field. Plankton samples from the water are collected and a water sample retained for mineral analysis. A check of the plant life found within the waters is followed by a random sampling of the resident insect life. For a determination of the types of fish inhabiting the lake, the waters are systematically netted by a standard method—and the "catches" as between different lakes compared, to indicate relative productivity.

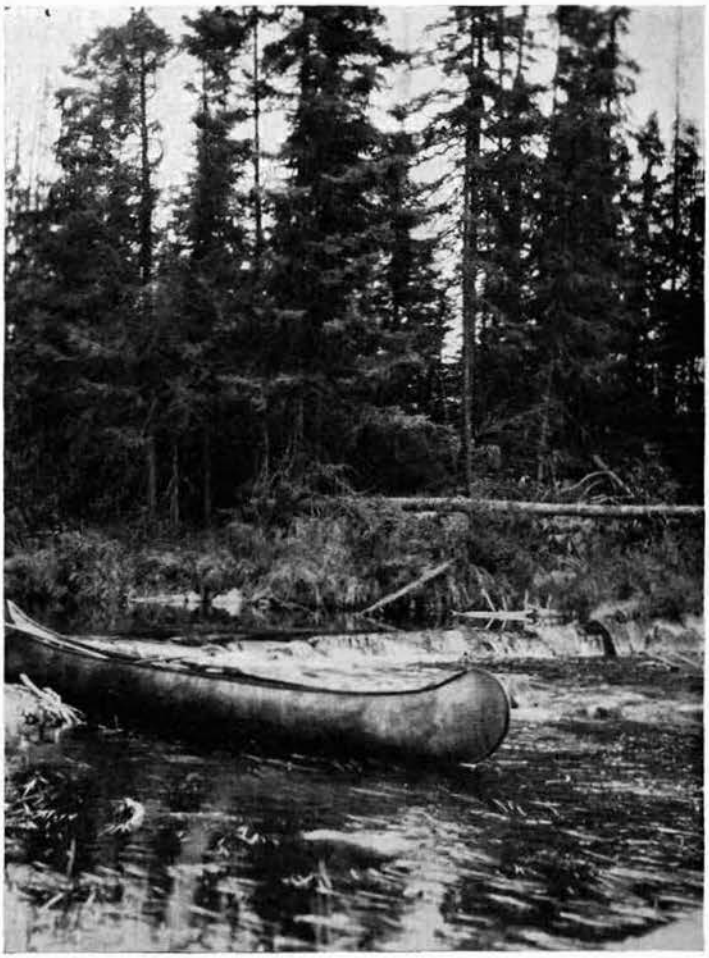
A very interesting bit of research work during the fishing season is that of collecting scales and obtaining length measurements from different species of fish caught by fishermen. The anglers are contacted at resorts, cabins, etc., and asked to cooperate by supplying information and material that will aid in an interpretation of present-day fish problems. Fish scales are examined with a microscope for age determination. Significant data on rate of growth can then be derived when age is correlated with the length measurements.

The autumn is a busy season for the game manager and in many respects the most interesting. The harvest period is relatively short, and all fruits cannot be collected at the same time. The wild rice crop must be watched with an "eagle eye," and, if it isn't the Indians, it is the "army" of blackbirds that arrive to make the harvest doubly difficult. Most of the rice crop is stored, temporarily, then sown just before the freeze-up at favorable

sites where it does not occur naturally.

Harvested berries must be treated and seeds extracted in a cleaned condition. Those not sown in nursery beds are carefully stratified in moist sand for over-winter storage and "after-ripening" effect. In late October, the regular fall grouse census is taken to determine increment from the breeding season.

Early November marks the time when it is most convenient to determine the size of the deer herd. This may best be accomplished by staging a "deer drive," as it is called when men are stationed on three sides of an area and instructed to tally deer as a fourth advancing side moves through the area. Usually, as many deer cut back through the "driving line" as pass by the "counters." A minimum of about 40 men are needed to census a single square mile of area, and it is often best to use 100 or more.



Gunflint District, Superior National Forest

During the open season on deer, an effort must be made to obtain accurate utilization figures for the forest unit as a whole or for a sample. This is readily accomplished by operating checking stations at road outlets of the

area. Attendants stop every car coming out and obtain information from the hunters as to number of hours hunted, number of dead deer seen, number of deer wounded, and, if a deer was killed, its age, sex, weight, and location where it was killed. Hunters have been found to cooperate to the fullest extent. The resulting data, when compiled and interpreted, can be used in management for intelligent handling of the deer herd as well as for a basis in effecting sane hunting regulations.

The winter snow and wind ushers in a period when little but investigational work may be attempted. As a supplement to summer studies, a systematic survey of important lakes includes a mapping, sounding, and bottom-sampling program. Using a system of cross-sectioning, the lake is picketed in its entirety, and soundings taken every 100 feet. A separate crew of three men maps the timbered area surrounding the lake and secures land elevations such that contours may later be included on a map.

Deer come in for more than their share of attention from January through the month of March. With the arrival of deep snow and low temperatures, the deer may generally be found "yarded" up in white cedar swamps. The temporary concentration affords an excellent opportunity to lure the hungry animals into specially designed traps (baited with alfalfa or cedar boughs) where they are tagged on the ear with a small metal clip, and then released. Fawns are more apt to enter the traps than adult deer, since the food situation with them is more acute. Their primary interest is in staving off starvation, and the same individual will commonly enter the trap time and time again.

The purpose of tagging deer is to build up a knowledge of their wandering habits, in other words, their mobility. The sportsman is expected to cooperate by turning in the ear tag from a deer which he may have killed during the hunting season. Only in this way can accurate information ever be obtained upon which may be based a scientific system of big game refuges.

Of great concern to the forest game manager in the winter is the matter of deer yard analysis. A preliminary investigation is likely to indicate the poor condition of the natural cedar swamp feeding grounds. The observable lack of available browse is often striking. An intensive study must follow to determine the exact condition of the "yard" and the possibility of "overbrowsing." This is done by locating sample plots and tallying all plants upon which the deer are feeding.

All information is recorded on tally sheets and the data later used in an analysis of the "yard" as a whole. It is of more than passing interest to the game manager when the seriousness of the food situation is revealed as a result of these studies. A natural deer food shortage during the "critical" season presents a problem, a solution for which may not be in the offing for several years.

To the forest game manager reverts the task of shaping a well-rounded scheme of practical controls around a comprehensive wildlife investigation which is at present stressing the survey, census, inventory, and research aspect of the job. But this is only to be expected for a work yet in its embryonic stages of development.

STUDENT ACTIVITIES

FORESTRY CLUB DIGEST

As Digested by Floyd Clark and John Riss

ALVIN HAGEN ..... *President*
GEORGE BISKEY ..... *Vice-President*
ALVIN NELSON ..... *Secretary*
JAMES KIMBALL ..... *Treasurer*

Swinging through years of continued success the Forestry Club reached its climax with the annual Banquet of 1937, featuring Mr. Grabow, Public Relations representative from Region Nine and also a former Minnesota graduate. With an attendance of two hundred, the occasion was stimulated by reminiscent "speeches" from Ray Woods of the Freshman "Corp" and Morley Brandborg for the Cloquet gang. Musical renditions featured Bob Erickson and the Farm Campus Quartet, composed of Foresters Tatting and Gjertson and Ag students Swenson and Hoff.

Forestry club activities during '36 and '37 featured a homecoming float arranged by John Miles and assistants, athletics, and the "Tropical Dance." Although the float failed to repeat its former first prize win, it was enthusiastically attended and ably supported. Athletics featured varsity footballer Ed Kafka, varsity hockey player Dick Kroll, varsity wrestlers Norm Borlaug and Bob Zabel, and "Deadeye" Jim Fisher of the varsity rifle team. Intramural sports were dropped, but the sharpshooters of the forestry club made up a rifle team on their own and engaged in two inter-school matches, winning from Maine and losing to Iowa State. Apologies are extended to those athletes unintentionally overlooked. The Forestry Club Dance during the fall quarter was headed by Carl Dion, and dedicated to the alumni who have seen or are now engaged in service in the tropics. The "Tropical Dive" lent atmosphere to the occasion.

As an added incentive for united co-operation between classes, the "Dutch Uncle" committee headed by Victor C. Anderson inaugurated a new policy of initiating the freshmen and sophomores to the higher platitudes of understanding which are occupied solely by the upperclassmen. The movement is an important factor in furthering acquaintances between the various classes and in orienting the transfer students. As in every other student movement, cooperation is the keynote for success.

Al Hagen, president of the forestry club, should by all means be included in the roster of honorable mention for 1937. Al started a new deal in forestry club meetings, featuring each with an outstanding speaker from the two cities. The talks were not confined to forestry alone, but were given with the idea of broadening the foresters on a few outside subjects away from the forestry angle. To top off the last meeting lunch was served, a climaxing incentive for everyone to attend the meetings and partake of a free midnight lunch before hitting the hay.

Although left until last, one of the outstanding events of the entire year was the Forestry Club Bonfire held at the beginning of the fall quarter in the customary hollow of the south pasture. With an exceptional turnout crowded around the fire, old friendships were reunited, "tall stories" strung, and refreshments grabbed by all. The bonfire marks the beginning of the Club year, an occasion to look forward to and to plan for the coming fiscal (?) year. With Scott Pauley as the newly elected president, the watchword is: "Carry on."

FRONT ROW: Martin Meldahl, Jack Mead, Richard C. Smith, E. Arnold Hanson.
SECOND ROW: Joe Turley, Chas. Hutchinson, Carl R. Dion, Samuel Poirier, Harold Roussopoulos.

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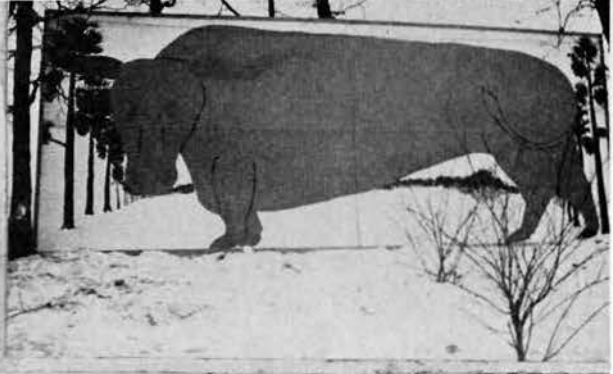


FORESTER'S DAY

1937

Foresters' Day, 1937

Frank Shearer, '37 President

MINNESOTA has a reputation for having big football teams, lovely blondes, and a tradition for bigger and better "Days" for every school on the Campus. Not to be outdone by the engineers, the miners, and their ilk, the current crop of foresters bent every ounce of energy and used every resource (the resources mostly consisting of more energy) to make this year's Foresters' Day a bigger and better celebration in every sense of the word.

Since the constitution provides that the second Saturday in the winter quarter shall be set aside for a day of feasting and rejoicing, of games and trials of skill by all foresters, young and old, plans were laid to make January 16 the big day.

The usual roster of committees was appointed; but with true New Deal spirit and the zeal of reformers, the the executive committee, composed of Frank Shearer, John Miles and Bob Sharp, made some sweeping changes in committee organization and created numerous new committees. However, the one saving feature of the changes was that they chose such good men on the committees that the Day was a huge success in spite of the bureaucrats.

Space will not permit naming all the men who put forth such fine effort, cooperation and enthusiasm to make the Day a success. Suffice it to say, that the exhibits and decorations, although of necessity constructed and put into position between 7:00 and 11:00 A. M. and removed before 6:30 P. M., were unanimously and enthusiastically acclaimed to be the best yet placed on exhibition.

Of course, the most important parts of any celebration from the students' viewpoint are the eating and the athletic program. The Bean Feed was handled by Gordie Coffin and Bob Bingham who done nobly; and when they heard the call, "Come and get it," about 250 hungry foresters filed past the victual tables, cleaned the last morsel from their plates and pronounced it good.

Following the Bean Feed, an elaborate program of athletic events began under the able management of those two master showmen, Jim Taplin and Jim Kimball. To do the boys justice, it must be said that their offerings made Barnum's best three-ring headliners look like small town stuff.

Promptly at 1:30 the general chairman opened the activities with a few words of welcome and introduced Dr. Schmitz who gave a short speech of eulogy and dedicated the Day to Dr. Frank Kaufert (our own Frank who is now a silent partner of DuPont de Nemours).

Following the dedication, Don Dailey's wrestlers started the athletic events with a growl and grunt program which was everything that could be desired in the way of action, twisted necks, and bumped heads. In rapid fire order, there came some fine boxing bouts under the supervision of Gene Hurley. The boys really took their boxing seriously, and even the most dyed-in-the-wool fight fan could

have craved nothing in the way of haymakers and bloody noses.

At about 2:30 the outdoor events swung into action, and for nearly three hours one contest followed another in such rapid succession that it kept the large crowd on the jump to get from one event to another. In addition to the time-honored contests of the profession, ranging from hatchet throwing to log skidding, several new attractions were offered which proved highly popular. Spar climbing was introduced for the first time; and although many of the boys put forth their best efforts, Ralph Eisele walked away with the laurels so easily that folks stood with mouths agape as his spurs beat a tattoo up and down the tall cedar. One of the old timers remarked that if he could teach Ralph to retrieve or fit him with a good comfortable collar and about 200 feet of heavy line, a fellow could make a fortune with the boy, collecting Norway cones.

Another new event which attracted widespread and favorable attention was the girls' snowshoe race. The girls went at it with a vengeance; and out of a field of eight, one of them almost finished in an upright position. However, the contest was judged like horseshoes; and the lady falling closest to the goal received the prize.

The afternoon events reached a climax when, on a throne of ice set in a background of evergreens with Paul's big blue ox, "Babe," standing guard, special envoy Parker Anderson crowned Eleanor Petronio Queen of the Day; and loud and lusty cheers from over 300 foresters' throats rent the crisp wintry air.

Al Hagen, popular Forestry senior and busiest man on the Campus, was chosen Son of Paul by an overwhelming majority in an election held on the Friday before Foresters' Day; and at the contests, such men as Fred Dickinson (high point man), Bud Clark, Morley Brandborg, Bob Sharp, Al Engstrom, and others covered themselves with glory. The team of Rees and Angelo proved a little too much for the boys on the saw handles, and Byfield & Company still proved a trifle too good on the icy skids. However, it is impossible to go into a detailed description of all the events and to list the winners. So, we will just have to dismiss the subject and say, "A good time was had by all."

Breaking with former precedent and over-ruling the objections of many of us old die-hards who insisted that it would be unconstitutional, contrary to the best traditions, and financially disastrous, the more liberal element among the foresters, loudly proclaiming against the lack of esthetic and acoustical qualities in the old gym, succeeded in moving the traditional Foresters' Day ball in the evening to a downtown hotel. A fine orchestra and the Continental Room of the Hotel St. Paul combined to furnish an ideal setting to climax a great day. The foresters, completely transformed in Rothschild's best, and immaculate linens, proceeded to "trip the light fantastic" with their sweethearts and blind dates 'til the wee sma' hours.

At intermission the Queen, the Son of Paul, and many of the committee chairmen, as well as some of the winning contestants from the afternoon games, were called up on the stage and received the plaudits of the appreciative and enthusiastic crowd.

It must be said that the dance was a complete success for all those attending; and though it did not show a large profit, it did give the boys a sufficient glimpse of the bright lights to, in all probability, make the ball permanently an off-campus affair.

Considering the magnitude and nature of the whole celebration, surprisingly few casualties were reported and none of major consequence. It is reported that Dr. Rees was hors de combat for several days after his supreme effort in the log chopping contest; Parker Anderson suffered bruises and lacerations about the head and face when pictures appeared in one of the downtown papers showing him saluting the Queen in true Don Juan fashion following the coronation. One of our outstanding foresters was detained over the weekend in solitary confinement by over-zealous and slightly misdirected boys with red shirts and a yen for publicity. Frank Shearer suffered shock and slight concussion when he swooned and fell to the sidewalk in front of the Horticulture Building after being told on Friday, the 15th, that one of the committees had bungled and the gym would not be available for Foresters' Day on the morrow. It is reported that all casualties recovered, however, with no apparent serious after-effects.

All in all, Foresters' Day of 1937 was a large success for those who participated, and everyone present expressed the conviction that it is really an institution worth perpetuating for those who will come after us. There seems to be some improvement year by year; but although Al Hagen and Everett Byfield, heading publicity committees, worked unceasingly and tirelessly for weeks and used every organ of propaganda and student contact available, little over half of the foresters turned out, which indicates that next year's Association still has a big job on its hands. Not until at least seventy-five percent of the forestry students attend and participate in Foresters' Day can we say that we have fulfilled its purpose. That is the job for next year's Association. May they find it as happy and stimulating a task as we who have carried this tradition along so far.

Forest Fire Protection in the United States

Guy W. Hawkins, '37
First Prize Winner, 1936 Pack Essay Contest

THE STUDY of man's constant struggle for the control of forest fires is a fascinating one. It often reveals aspects somewhat surprising to the layman. One aspect which came as a surprise to the writer is the fact that, in spite of the fairly rapid progress made in the last twenty years, when viewed in the light of modern technology, American methods of dealing with the forest fire problem are still deplorably crude. This condition is undoubtedly the direct result of apathy and ignorance on the part of the average American citizen.

There is probably not a reflective American today "with soul so dead" that he does not experience a mental twinge on reading a newspaper account of several hundred weary fire fighters risking their lives in an ineffective battle against a monstrous fire devouring another of our few remaining virgin forests. Can't modern science with its recent epochal strides in the fields of chemistry and mechanics equip man with effective weapons and methods for the control of this menace? Yes, she undoubtedly can. What, then, is the trouble? "Insufficient funds" is the invariable answer. How can these be provided? By definite action on the parts of those interested, whose wishes are expressed through their political representatives, the public administrators of public expenditures.

The purpose of this essay is to provide for the man on the street, the taxpayer, a comprehensible view of the modern methods of forest fire protection, and also of the state and federal organizations for applying these methods.

Every state containing extensive forest stands now maintains an organization for controlling forest fires. One of the most important functions of the U. S. Forest Service of the Department of Agriculture is the control of forest fires in the national forests. Since the fundamental features of both federal and state organizations are similar, a brief survey of the set-up in Minnesota should provide a general picture of the system as a whole.

The northern half of Minnesota, the only portion containing her remaining contiguous forest areas, is divided into twenty fire protection districts, the size of each having been determined chiefly by the roughness of its topography and its fire susceptibility. Each of these districts is in charge of a State Ranger who is under the supervision of the State Forester, the Commissioner of Forestry of the State Conservation Department. These fire districts are in turn divided into sub-districts, each in charge of a patrolman. The primary duty of the patrolman is the suppression of fires in his sub-district, so he must be thoroughly familiar with its topography and the location of every road and trail. Since the cooperation of the settlers of his sub-district is a vitally important factor in fire prevention and because they must be largely depended upon for aid in fire fighting,

he must maintain relations as friendly as possible with all of them.

During the most hazardous seasons, towermen and temporary fire foremen are hired to help the patrolmen. On windy days in the fall and early spring, when the ground cover is dead and dry, towermen must remain on watch from eight in the morning until four or five in the afternoon. In isolated country, where visitors seldom venture over the rocky, rough trails to the Lookout Stations and at times when "smokes" to be reported occur only at long intervals, the day often drags along very slowly for the lone watchman in the elevated glass and tin cage.

One morning an unusually venturesome tourist climbed the long, steep, lonely trail leading to Spider Lake Lookout. On arriving at the station grounds on the hilltop he was apparently still dissatisfied with the view and proceeded to climb the one hundred-foot step tower which stood in the yard. The tourist was unaware that Bill McBride, the young towerman above him, who was listening to his upward progress, was one of the best informed lookoutmen in the Service. Bill read voraciously all the forestry literature he could lay hands on and was especially interested in the subject of forest fire protection. When our tourist reached the crow's nest, the trap door was already opened for him and with a cheery welcome he was handed in and the trap door slammed shut behind him. This meeting of an unusually curious tourist and a well read and enthusiastic young towerman proved a happy one for both parties.

After the barrage of general questions asked by the average tourist, such as, "What do you do in case of an electric storm?" and "Do you stay up here all night?" the course of questioning acquired more of a pioneering aspect.

"What's the commonest method of fighting fires around here and what kind of tools do you use?"

"Well, by and large, the long handled shovel is the most commonly used tool for fighting fires in America today," said Bill. "The pine bough probably comes next, and then wet sacks and portable pump tanks when water is available."

"Sounds pretty crude to me," commented Friend Tourist, "in this modern day of airplanes and chemical research to send a bunch of poor devils out in the choking smoke to risk their lives using the tools of a century ago."

"It is crude," agreed Bill. "The airplane is slowly coming into use. In the West it's used for detection work to supplement the tower system, and in the East it's becoming an important piece of standard equipment in the control and supervision of big fires. I was just reading an article by the state forest fire warden of New Jersey in which he credits their use of airplanes for a record they made last year. Not a single fire they put out rekindled the following day."

"They keep an airplane with a couple of trained observers flying over the fire, mapping the spreading fire line and checking danger points. The observers drop this information down to the chief of the ground party, thus showing him how to use his manpower to the best advantage."

"Planes are also used in protection work over some of the more valuable forests on the Pacific coast. They have found that from an altitude of five thousand feet, fires thirty miles away can be detected. In one case a fire covering only two hundred acres was

located within a half mile by a plane thirty miles away."

"Canada has gone ahead in rather a large way with airplane protection. In 1930 she was operating twenty-four machines from nine wireless-equipped bases. Over seventy-five million acres were regularly patrolled in northern Manitoba, Saskatchewan, and Alberta. In northern Alberta only detection work was carried on by land planes, but in the rest of the patrolled area actual supression work was done by flying boats which land on the many lakes dotting the region. The patrol planes fly regularly over heavily timbered routes and when they sight trouble they wireless back to the nearest base where big amphibians equipped to carry men, supplies, and fighting equipment are lying in readiness. Planes equipped with skis patrol the snow fields in the late winter months looking for camp fires abandoned by prospectors, fishermen, or trappers — fires which may be the seed of later bog fires."

"Well, do you fellows have to depend on the telephone for all communications?" asked the tourist. "I should think they'd have you equipped with radios something like the police squad cars in town."

"We still depend almost wholly on the telephone in the Lake States," Bill began, "and I believe it will be a long time before the telephone is completely discarded. Radio as a fire protection device is still largely in the experimental stage in the Lake States. Wisconsin appropriated a large sum for experimentation last year and last summer three radio technicians employed by the State Forest Service covered most of northern Minnesota making field tests of the feasibility of supplementing our tower system with radio."

"Of the Lake States, Michigan is the best prepared for handling radio. Her forested area is so well 'covered' by towers that it is said that one can't get more than fifteen miles from a tower. Her present objective is to equip all towers and patrolman cars with high frequency units. The progress of fires can then be reported to the towers by radio directly from the scene of the fire and relayed from the towers to the ranger stations by telephone."

"Radio has become an invaluable aid on the Upper Peninsula in Michigan where men often must be packed in on foot. Our department got a letter from the Michigan Forest Service last winter telling of one typical instance where radio saved them a lot of trouble. A year ago last spring one of their fire wardens was called to a fire in a dangerous hilly section. When he finally arrived at the fire he was five miles from his car and thirteen miles from the nearest phone. But he had a portable transmitting set in his pack, so he radioed a message to the nearest tower for the necessary number of men and amount of equipment to check the fire, giving directions for getting there. Incidentally, he reported a small spreading fire which he had spotted on his way in."

"But why all this experimentation?" broke in the tourist. "What's the chief obstacle?"

"The main trouble is that we're restricted to the use of short wave transmission and short waves travel in a straight line with very little bend. Reception seems to be restricted to a distance of about thirty miles parallel to the earth's surface, then the straight path of the short waves carries the

message off into space. A high hill in the path of the waves kills the message, so the sender and receiver must be within sight range of one another. Radio can be used more advantageously in the West because of the mountains. Effective transmission can be carried on between a lookout station and a traveling car eighty miles away because of the extensive vertical range afforded by the mountain side or top. For the same reason, airplanes equipped with radio are greatly enhanced as fire protection machines."

"That's all very interesting," remarked the tourist, "but I read an account in the papers last week about two hundred thousand acres of virgin timber being completely destroyed by fire. In that same fire a score of fire fighters were trapped and burned to death. I suppose they were armed with long handled shovels and pine boughs."

"As long as our forests are still managed largely extensively instead of intensively why doesn't the Government use extensive fire protective methods on her few precious remaining forest stands? I was reading an article in "Field and Stream" the other day in which the author said that 'high officials of the Forest Service frankly admit that a single aerial bomb carrying a hundred pounds of fire extinguishing chemical might easily be worth the combined efforts of several hundred fire fighters on the ground with wet sacks and shovels.' A modern bombing plane could carry two tons of such bombs. He suggested using gas shells which, on exploding, would liberate a gas which would smother the fire—utilizing the same chemical properties that the common household fire extinguisher does."

"This chap recommended attacking a big forest fire in wholesale style just as we would attack a modern enemy army, by developing chemical mines to string across the path of the fire—mines which will explode on being heated, releasing a gas which will hang low and smother the advancing flames. Or the artillery might be given good target practice by calling into play some of the modern five-inch field pieces, which are very mobile and have an effective range of twenty miles, and dropping chemical bombs onto the fire where they would be the most effective."

"By George, that does sound practicable, but it would take a lot of money," reasoned Bill.

"Well, aren't our few remaining timber stands worth a lot of money?" retorted the tourist, "and isn't it high time we were adopting man-sized methods of fire control?"

1936

ITASCA

The Freshman Corporation of 1936

James T. Marcum, '39

Last spring we freshmen migrated up to dear old Itasca Park to spend the most enjoyable six weeks of our lives(?). At least that's the way Cheyney painted the picture for us, a veritable paradise for fishing, camping, canoe trips and what have you. Had we only known that "Killer" Moyle was eagerly awaiting our arrival so he could haunt us with that syllabus of his, and Prof. Mickel with his course in bird lore, I think some of us would have been only too glad to wait another year before going to that veritable paradise. The only time that I ever used my camping equipment was to prepare a can of beans in the bunkhouse one night before going to bed. For the benefit of those who expect to go camping in the Park I would advise them to bring along some canned heat, because camp fires in the Park are strictly forbidden. For the benefit of those who smoke—remember—"bust your match." Carrol Mattlin and Kenneth Buzzell brought canoes along with them and the rest of us certainly were envious. Buzzell must have cached his somewhere in the woods, for it was seldom seen around camp. I think Mattlin used his less than the rest of us because someone always had it out fishing or whatnot(?).

We had previously been told that automobiles were strictly forbidden at the Park as they constituted a serious menace to one's good behavior, so the automobiles were left at home. Some of the contrivances that did come rolling in are undescribable. Old Fords, Dodges, motorcycles, etc., are the categories to which most of them belonged. Bergstrom and Kienow had an affinity for the same make (1924-F?), while Sweitzer and "Ozark" Lilligren, not wanting to break any of the by-laws of the corporation, came sailing into camp on motorcycles, since these were not listed under the prohibition act.

Now I have been told not to forget the faculty, and in the following lines I think you will find more truth than poetry.

Here's to our Profs, with good intent,
For the six weeks of study which most of us spent,
Learning of flowers, and birds, and of bees,
And cruising a forty to count up the trees.

Now Professor Mickel, so I have heard,
Is an infallible authority on unnatural birds,
He studies their habits, their plumage and song,
And on characteristics he never goes wrong.

Prof. Brown once said with great remorse,
"I don't think I'll give any tests in this course";
Since then he has been a great inspiration,
Especially to students taking mensuration.

And "Killer" Moyle who was always with us,
Spent six years to construct a syllabus,
Now if at the beginning of his outline he starts,
He can describe every plant in Itasca Park.

Professor Cheyney with his genial smile,
Caused us to walk for mile after mile,
He told us to study certain type stands,
And hand in a write-up to suit his demands.

Apologies are extended to Professor Rosendahl and Professor Hodson for

not receiving a part in this memorable epitaph.

Our activities were supposed to be centered in the immediate vicinity of the Park, but some of us were unused to being confined to such a small area. Prof. Brown taught us to pace off chains, and we sure did practice a lot. By actual count it is 2,080 chains from the Luxury Ice Cream Parlor, in Park Rapids, to the front porch of the bunkhouse; and it is 240 chains to Headwaters Inn, according to the calculations of Madson and Kasper. I thought I would quote these figures for the benefit of those who didn't know.

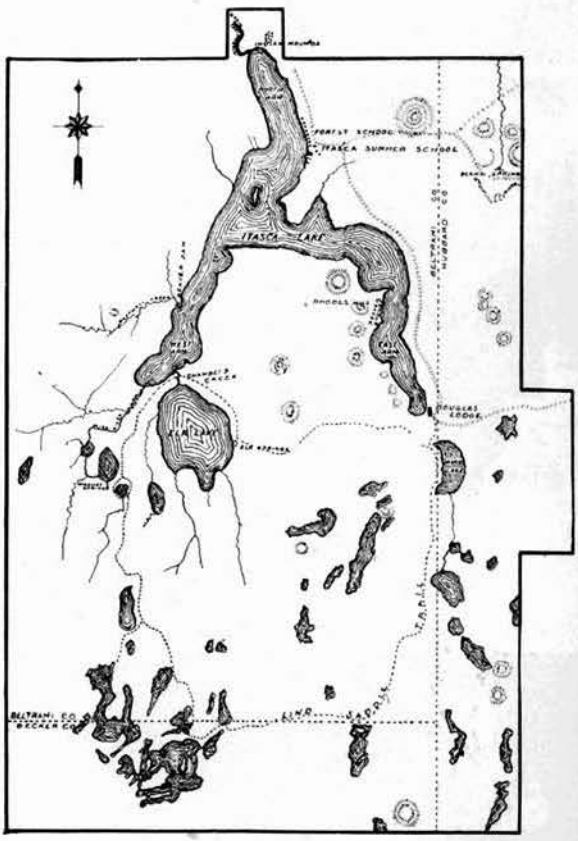
Our domicile consisted of one large bunkhouse and five cabins, and last but not least the library. The library had to be included because of a certain number of knowledge seekers who practically lived there during the entire six weeks. "Doc" Wood and "Botanical Minded" Don Carroll staged a "sit down" strike in the bunkhouse for several weeks, while Vince Olson told strange tales about Comfrey, Minnesota. Parker Dragoo got so far ahead in his class work that he felt the need of a rest and disappeared for a week. When he finally came back he was greeted with a forty assignment. Now speaking of forties always reminds me of a mucky swamp, a veritable incubator for mosquitoes, woodticks, and other parasites; scrubby alders, spruce-balsam thickets, and the instigator of it all, Prof. Brown. All the forties did not fit this description, but they were in a minority. Tall tales circulated around camp about this forty business. One unfortunate individual, surname Schoensee, became so absorbed in hunting for a lost Abney Level that he sort of lost his sense of direction, at least that's the way Ashbach and Norblom put it. Kienow and Post must have been given a forty near Bemidji, for that's where they did most of their cruising, and according to statistics they brought back some funny looking food supplies at times.

Now everything went along quite smoothly for the first three or four weeks and then things began to happen. One night in particular, after a week or so of scorching hot weather, a storm blew up. Dark clouds rolled up and the winds howled something fierce. Those who slept on the porches worked frantically to hook the canvas over the screens to keep out the rain. The situation grew quite desperate so Parker Dragoo gathered up a handful of followers and dashed out into the storm. On bended knees they prayed to "Allah" to be merciful, and as a final tribute to appease the wrath of the "Gods" they offered a human sacrifice in the form of Richard Gruenhagen, who was tossed headlong off the dock into the lake. Following this, every member of the camp was sacrificed in like manner. It's funny how some of the fellows got such a faraway look in their eyes as they sailed off the dock. Some even resented such tactics, and we didn't throw Bonacci in because we didn't want to take a chance on him getting acute indigestion.

Some word should be said about

the officers of the corporation. Well, Gus Danielson, our president, certainly did a good job of running the camp. Howard Post was treasurer and Erich Kienow was steward. Robert Schoensee was the mailman and he was kept quite busy sorting the pay envelopes. Seems as if everyone was sending home for money, but I don't know why, we didn't have any place to spend it. Danielson was forced to leave camp before school was over, so "Doc" Woods was elected our new prexy, as the bunkhouse gang had a majority over the cabins.

Now it wasn't long before the nineteenth of July came rolling around, and it was our duty to set aside that memorial date for resurrecting the poor "Quiz" and lay it back to rest again, in memory of days gone by. Such a motley group of animated Doodlebugs that assembled on that day to pay homage to the "Quiz" would have done justice to a sideshow of freaks. Some wore robes of deepest mourning, while others bedecked themselves in scanty raiments of nature's more esthetic mood. Parker Dragoo presided over the ceremonies which consisted of a parade, "en masse," down to the tourist camp and back and then the burial of the "Quiz" in back of cabin seven. Russ Larson was called upon to imitate the mooing call of the cowbird, while Laurel Madson gave an illustrated talk on rare species of plant found only in the Park. Following this a dunking party ensued where each and every member was unceremoniously dipped into the lake. That night we had a big bonfire in back of the bunkhouse, and a cordial invitation was extended to the members of the faculty. Moyle and Hodson sure told some good jokes and Mickel gave a short talk on "Proper Methods of Pen Raising House Cats." He seemed to think that bigger cages had a great deal to do with it. One joke called for another until the blazing fire dwindled to a heap of glowing coals. Thus ended one of the most eventful days at the Park. Weeks sped swiftly to an end, and on the twenty-fifth of July the Freshman Corporation became a thing of the past, to be cherished in memory for years to come, by those who formed the Corporation of 1936.



CLOQUET 1936

The Junior Corporation of 1936

Morley Brandborg, '37

Way Out West,
November, 1936

Dear Dick:

Your letter of recent date has been received, and read with no small amount of amusement. So it was decided that Brandborg should write the Cloquet article for the Peavey? Well, the blame be on the heads of those who chose me.

I don't know exactly how much of the most interesting parts of camp I can remember. It has been quite a while since into the frozen north rode the chosen 52. Spring (?), 1936, and to Cloquet went the Junior Class. From all directions they came, riding in everything from Fords of ancient vintage to those two years older still. To a man they were prepared to struggle through swamps, to slap to death a few unlucky individuals from a cloud of mosquitoes, and to burn the midnight oil in a determined assault on the bastions of knowledge. (I thought that word "knowledge" should be in here somewhere, and this is the only place I can find to put it.)

As the men arrived, they immediately started making preparations for the business of the quarter. These preparations consisted for the most part of tossing blankets on the chosen bunks, saying "Hello" to a few friends, then running to the kitchen to see how the grub situation was stacking up. The reputation of Mrs. Watkins, the cook, had gone before her. That it was richly deserved there is no doubt. Anyone who can take the common dried bean of commerce and make of it a thing of beauty, as did "Mom", is more than just a cook; she is a worker of minor miracles. And, Dick, can't you sit there at your little desk in the Peavey office and remember the taste of those beautiful date pies? Son, there is a woman!

The first official work of the quarter was under the direction of Mr. Allison, if you will remember. I can still see the boys tripping through the woods, with underfoot a couple of feet of wet, loose snow. All the instructor had to do was come out and follow the tracks of a party in order to find out why the northwest corner of Compartment 11 didn't appear on the type map exactly as it should. Some of those places were deucedly hard to get to; and dreamed-in type lines seem almost mobile. They scatter all around the true points without ever quite hitting "on the nose."

And can you remember those field zoology notes? They were fearsome things in many cases, and fearsome methods were often used in getting them! One boy half filled a note-book the first week. If all the rabbit sign that lad noted the first week had been put in one pile it would have been quite an impressive sight. His notes, however, followed the law of diminishing returns. He finally got nearly three-fifths of that note-book filled by the end of the term.

Mr. Cheyney's course suffered from "weatheritis." At first the snow was just melting, and the boys had trouble getting around. A little later the sun stared down benignly; it was warm;

and the lee side of a jack-pine seemed a fine place to sit while discussing the finer points of timber management, and things. In short, the boys still had trouble getting around.

And, Dick, Mr. Alway's course in soils deserves some mention. I remember climbing into that station-wagon affair, riding eleven miles into the swamp, then filling up a soup-can with dirt and hurrying home to put it in the oven to bake. I left one there; it should be well done by this time. At that, I think that the general fund of knowledge was increased to quite an extent.

Boy, did we stuff 'em in field zoology! The smaller mammals and birds really took a beating up there. Imagine Mama Squirrel peeking out from behind a pine trunk as she says to her young son, "Yes, Rollo, it happens every year about this time." Then she dodges a rock from the slingshot of a boy on the ground below. The uncouth forester who has just missed then mutters to himself that inasmuch as all the traps he sets for the small beasts seem to catch nothing but clothes-pin mice he'll have to improve on his marksmanship if he is to fulfill Don's demand for ten mounted specimens of the local fauna. Or maybe he can take one of Mosebrook's Finn socks and stuff that; it's surely qualifying as a "wild" thing. Finally, however, he decides to go to town immediately after supper and stuff himself, and so settles a weighty problem to his own complete satisfaction.

Now, Mr. Editor, a few personalities. Of Mr. Marsh I would first speak. The rabbit which that man mounted was a masterpiece in its line. I see it now, with its hair looking like a spruce bog after a cyclone, with one ear lopped coyly over an eye and the other pointing like an admonishing finger at that Valhalla to which all good little rabbits should aspire. It is now clear whence came that old saying, "Wild as a **Marsh** hare."

As a "go to bat-er" Ray Ellstrom had no peer. At exactly 7:02 P. M. on five days a week he emerged from the "Boars' Nest," and headed for the "Bull Pen." As he crossed the camp he was whispering fortissimo, "Hey, Brandy, I've a dollar six-bits and I think we ought ———." The rest faded into silence as the old roadster coughed out the gate with its top flapping like the tattered sails of a derelict ship.

Remember the shocked silence which followed Clint Turnquist's first little deviation from the paths of rectitude in conversation? Somehow it comes to mind that that moment of surprise didn't last very long. Clint topped his first effort, and piled 'em up from there on out.

Now, Dick, a few questions. Who was the boy who went to town alone, but came home singing tenderly to a lovely specimen of the genus **Ashcanicus** which he was holding lovingly to his bosom? And who were those gentlemen who were wont to proceed to Cloquet, sit in the car until the girls came off duty at the match factory at 1:00 A. M., then head for the tall and uncut? Who pranced precariously in fox-trot time around the floor at the tavern with a sadly uninterested and unresponsive chair for partner? Who in an excess of boyish enthusiasm shoved his fist through the wash-room wall? Who made all those trips to the Finn bath, steamed off four pounds and then took on sufficient liquid nourishment to put six pounds back?

Who——, but enough of this stuff, Dick. Cloquet is through with us, her

myriad charms will be lavished on a new generation. There must still be **some** knowledge running around up there which we did not succeed in catching despite those hours in the woods and at writing reports of the work. To its pursuit we must commend the classes which come after us. To those classes also we must will the good times of the best quarter of all college years.

So, I'll close this little epistle with the expectation of standing with you and the rest of the Cloquet class of 1936 and slowly turning green with envy as we watch the 1937 group pull out for the "North Country."

Yours,

"Brandy"

Jay Cooke State Park

REPRESENTATIVE FRESHMEN

First Row: Edwards, Hampel, VanDyke, Tuttle, Scarp, Hartwig, Behr.
Second Row: Moore, Addison, Klotz, Peterson, Lillje, Haenze, Talbert.
Third Row: Jongewaard, Parker, Hess, Lohmer, Kobler, Aaberg, Bruer, Washburn, Erson.
Fourth Row: Dingle, Perpich, Bingham, Aamundson, Schroeder, Ahern, Custer, B. Davis.
Fifth Row: Mac Kenzie, Kreiter, Coffin, Andrews.

CLASS OF 1940

Melvin Aaberg
Robert Addison
Richard Ahern
Donald Anderson
Walter Anderson
Milner Anderson
Donald Aucutt
Kurtis Baker
Albert Becker
Eldon Behr
Charles Binger
Robert Bingham
Irwin Biren
Charles Brockman
Glen Bruer
Carl Carlson
John Carlson
Donald Clark
Stephen Clark
Gordon Coffin
Norman Conrad
John Custer
Bernard Davis
Richard Dingle
Russell Edwards, Jr.
Clarence Eggen
Walter Erson
Wilson Fargo
Danna Felix
Hymie Fishman
William Gfrerer
Louis Grou
Marvin Haenze
Joel Hall
George Halpin
Walter Hammond
Robert Hampel
Philip Hanson, Jr.
Ross Hanson
Harvey Hartwig
Robert Helgeson
Martin Hense
Robert Hess
Virgil Hogdal
Ralph Holmberg
Paul Hopkins
William Hosfield
George Irvine
Harris Johnson
Howard Johnson
Lowell Johnson
Noel Johnson
Russell Jongewaard
Julius Jurek
Robert Kasper
Harlow Kennedy
Robert Klotz
Richard Knox
George Kobler
Lambert Kowalewski
Richard Kreiter
George Lansing
Myron Latimer
Edwin Lehner
William Leonard
Veikko Levander
Irving Lifson
Fred Lillge
John Lindberg
John Lindquist
Duan Linker
Leo Lohmer
Thomas MacKenzie
Keith Markuson
John McGuire
Lester Michaelson
John Miller
Lester Miller
Emile Molle
Mark Moore
Raymond Mykleby
Ralph Nelson
William Nicholas
William Okey
Forrest Olsen
George Olson
Earl Osborne
Howard Osmundson
Warren Parker
Thomas Partridge
Tony Perpich
Earl Peterson
Joseph Peterson
Richard Quackenbush
Glenn Rotegard
Walter Sampson
Robert Scarp
Maurice Schlink
Richard Schroeder
Walter Solstad
Cedric Sovia
Clement Steele
Wayne Steineck
Lawrence Stephens
Henry Stokke
William Sughrove
Charles Swanson
Robert Sweitzer
Walter Talbert
Wilbur Teeters
Daniel Thompson, Jr.
Russell Thompson
Don Tome
Maurice Tuttle
Edward Valentine
Lorin Van Dyke
Allan Virta
Rudolph Vogel
Frank Wagner
Charles Washburn
Edwin Wegermann
Douglas Welch
Donald Wells
Eugene Whitney
Louis Wilkuski

REPRESENTATIVE SOPHOMORES

First Row: Wiley, Tatting, Warner, Huntley, Pepkowitz, Post, Diessner, Schoensee, Kienow.
Second Row: Boyeson, Haughen, Kington, Rich, Holberg, P. Jahn, Gilpin, Holland.
Third Row: Overholt, Brink, Strom, Liden, Selander, M. Olson, Kjeldsen, Trygstad.
Fourth Row: Woultee, B. Johnson, Sorenson, Morley, Benjamin, V. Olson, White.
Fifth Row: C. Carlson, Lehmkuhl, McDonald, Marcum.

CLASS OF 1939

Robert Adamke
John Adkins
Howard Alaspa
Edmund Anderson
Grant Anderson
Wilhelm Beckert
Daniel Benjamin
Joseph Blaisdell
Lemuel Blakemore
Robert Boos
Arthur Borchardt
George Boyeson
David Brink
Robert Browne
Clarence Buckman
Thomas Buckman
Everett Byfield
Edward Carlson
Donald Carroll
John Connor
John Connors
Chester Cox
Earl Dahl
Gustaf Danielson
Dale Denzer
Edward Deppe
Donald Diessner
Donald Dodge
Ian Dods
Frank Dodson
Robert Dosen
Parker Dragoo
Lester Dundas
Robert Dunne
Ralph Elkingson
Alf Engebretson
Robert Erickson
Oswald Esterl
Leroy Everson
Raymond Finn
Joe Finnegan
Barton Galle

Orville Gilpin
Don Gregg
Arnold Gulden
Axel Hanson
Harvey Hanson
Andrew Haughom
John Heraty
Joseph Hess
Donald Higgins
Louis Hoelscher
Wayne Holberg
Arthur Holland
Donald Hotchkiss
Richard Hultengren
Philip Huntley
Bert Jahn
Phillip Jahn
Roland Jahnke
Warren Jewett
Buford Johnson
Clifford Johnson
George Johnson
Herbert Johnson
Joseph Johnes
Arne Juola
James Keogh
Klayton Kidd
Eric Kienow
Donald Kjeldsen
Kent Kjelland
Milton Kral
William Kramer
Edward Kron
Forest Lane
Thomas Larson
Russell Larson
Harry Lear
Allan Lee
William Lehmkuhl
Hilton Lemke
Raymond Leskela
Glenn Liden

Hillard Lilligren
Edward Loomis
Joe Loomis
John Loper
Joseph Lorenz
Henry Lovold
Lawrence MacMaster
James Marcum
Robert Marston
Carrol Mattlin
Loren McDonald
Chester McNelly
Roger Meacham
Martin Meldahl
Melvin Menge
Edwin Miettunen
John Miles
Lyman Miles
Robert Moberg
John Mondek
Wilmar Monson
Robert Morley
Mark Nehl
Leo Nelson
John Norblom
Morris Olson
Olaf Olson
Vincent Olson
Leonard Orvold
Donald Overholt
Kenneth Peisch
Leonard Pepkowitz
Richard Peters
Toivo Pirho
Wesley Pohorsky
Howard Post
Duane Rauenhorst
Robert Rheinberger
Ralph Rich
Walton Roebuck
George Rogosheske
Hugo Saari

Nen Sackett
Howard Schmitz
Jack Schneeweiss
Robert Schoensee
Vincent Schurr
Kurt Sealander
Paul Shaw
Ogden Shutes
Sylvester Smolich
Herbert Sorensen
Edward Stanek
Emil Stone
Gordon Strom
John Sweeney
Robert Swenson
Clifford Synnes
Donald Tatting
Carl Thiry
Richard Tierney
Theodore Toren
Joseph Toth
Howard Tornes
Harvey Trombley
Gordon Trygstad
Frank Tucker
Joseph Turley
David Vesall
Donald Vogtman
Robert Wagle
George Walker
Robert Warner
Edward Wellein
Fred Wentink
Willard West
Charles White
Keith White
Wayne White
Eugene Willey
Orville Withee
Richard Witherell
Alden Wuoltee

REPRESENTATIVE JUNIORS

First Row: Dolzell, Kalin, Joula, Freeman, Spencer, Schneider, H. Hagen, V. Johnson, Walker.
Second Row: G. Larson, A. Nelson, Nordell, Bateson, Gruenhagen, March, King, Kucera, Niemela.
Third Row: Zabel, Meldahl, Gregg, Leach, C. Johnson, Mead, Piercy, Kafka, Wood.
Fourth Row: Leskela, Lohm, Henry, Harmon, Sedlacek, Borchardt, Hamm, Zietlow, Wuori, Dodge.
Fifth Row: Dahl, Kroll, Otto, Loula, Gjertson, J. Larson, Ercegovich, Haapala, Terch, Laine, Oase.
Sixth Row: Biskey, Davis, Nord, Hutchinson, Dods, Boobar, Dickinson, De Laitre, Engstrom, Kidd, Hilton, Synnes.

CLASS OF 1938

Phillip Anderson
Roger Anderson
Vincent Anderson
Walter Aspi
Allen Bateson
John Berkey
Edward Bergstrom
Everette Bergstrom
George Biskey
Ross Boobar
Norman Borlaug
Rudie Brauer
James Bussey
Marvin Carlson
Robert Clark
Clarence Cohn
Harry Davis
Keith Dech
Robert DeLeuw
Calvin De Laittre
Fred Dickinson
Albert Dolezel
Raymond Ellstrom
Judson Elston
Harold Emerson
Albert Engstrom

Warren Enstrom
John Ercegovich
Kenneth Garbisch
Joseph Gjertson
Richard Gruenhagen
Howard Hagen
Harlow Halvorson
William Hamilton
Philip Hamm
Marvin Harmon
Edward Henry
Robert Hiller
James Hilton
Axel Hupponen
Charles Hutchinson
Charles Johnson
Victor Johnson
Edward Kafka
Frank Kalin
Russell Kauppi
James Kimball
David King
Robert Kolbe
Richard Kroll
Richard Kucera
Edmund Laine

Robert Lang
Daniel Leach
Goodman Larson
Jack Larson
David Lohn
Edward Loula
Robert March
Melvin Mattila
John McDermott
William McFarland
John Mead
Kermit Miller
Alvin Nelson
Leonard Niemela
Robert Nord
Carl Nordell
John Oase
Joseph Ogrinc
Robert Olson
Kermit Otto
Olavi Pakarinen
Scott Pauley
Robert Piercy
William Potter
Joseph Remus
Raymond Ritchel

Douglas Robbins
Edwin Saarmio
Norton Schmidt
Roger Schmuck
Phillip Schneider
Carl Scholberg
Gordon Schwabe
Edwin Sedlacek
Donald Seebach
Omund Seglem
Robert Selover
Perry Skaara
Obadiah Spencer
James Taplin
John Taylor
John Toren
Paul Vruwink
Robert Wahlberg
William Walimaa
Dodd Walker
Ford Wilke
Malcom Williamson
Raymond Wood
Eino Wuori
Robert Zabel
Richard Zietlow

SENIORS

Not in Panels

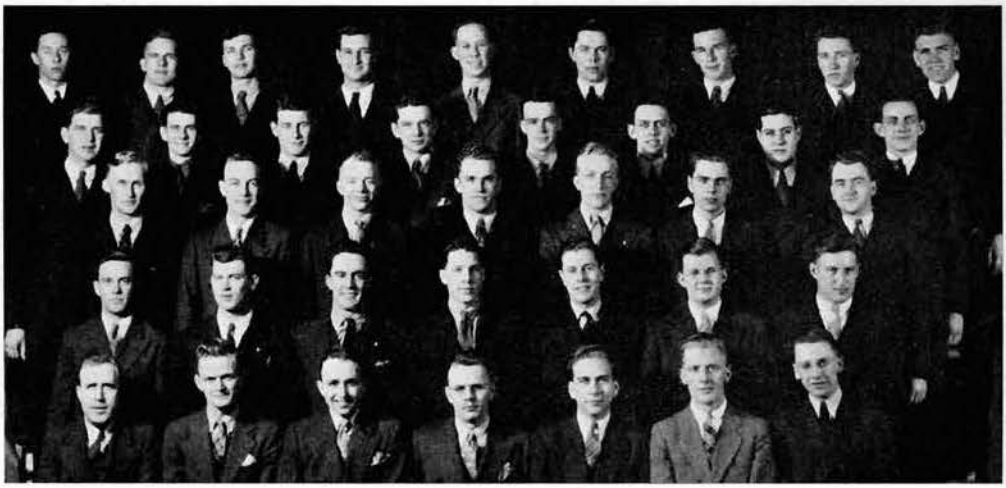
Philip Carlson
Mike Cherwynak
Richard Freeman

Niilo Haapala
Roy Johnson
Frederick Kuch

Philip Schroeder
Lawrence Terch
Gerald Thorkelson

UNCLASSIFIED

Edward Andrews
Wilfred Dugas
Clemens Kaufman
Lucian Marsh
Vincent Tibbetts



First Row: Shearer, Riss, Byfield, Bousquet, Mosebrook, A. Anderson, Shema.
Second Row: Goudy, Robbins, Taylor, Buckman, R. Smith, Meldahl, Schmidt.
Third Row: Kukachka, D. Johnson, Schroeder, E. Anderson, Moore, Carswell, Gregg.
Fourth Row: Loula, Blakemore, McNelly, Enstrom, Poirier, Tierney, Rauenhorst, Dosen.
Fifth Row: Heraty, McDonald, Schneiweiss, Mead, Turnquist, Miles, Miller, Clark, Schmuck.

TAU PHI DELTA

National Professional Forestry Fraternity

Founded at
UNIVERSITY OF WASHINGTON
1924

Local Chapter
BETA CHAPTER
1926

FACULTY MEMBERS

John H. Allison
Randolph M. Brown
Edward G. Cheyney
Clyde Christensen
Frank H. Kaufert
Ralph W. Lorenz
Louis W. Rees
Henry Schmitz

ACTIVE MEMBERS

Edwin Anderson
Axel Anderson
Edwin Bender
Vincent Bousquet
Wilhelm Beckert
R. E. Byfield
Floyd Clark
Donald Carswell
Robert Dosen
Donald Gregg
Robert Goudy
John Heraty
Douglas Johnson
B. Francis Kukachka
Joseph Lorenz
Edward Loula
John Mead
Martin Meldahl
John Miles
Harry Mosebrook
Samuel Poirier
Duane Rauenhorst
John Riss
John Schneeweiss
Roger Schmuck
Norton Schmidt
C. F. Shearer
John Taylor
Philip Schroeder
Bernard Shema
Richard C. Smith
Richard Tierney
Clinton Turnquist
Robert Wahlberg
Chester McNelly
Loren McDonald
Tom P. Buckman

PLEDGES

Lem Blakemore
Jack Miller
Frank Kalin
Albert C. Dolezel
Joseph Turley
Warren Enstrom
Douglas Robbins
Russell Kauppi
Mark Moore
Fred Dickinson
Warren Jewett

Front Row: B. Erickson, R. Johnson, Talbert, Becker, Eggen, Post, Diessner, Schoensee.
Second Row: J. Larson, Hagen, E. Nelson, V. Anderson, Menge, Roussopoulos, H. Hagen, V. Olson.
Third Row: Liden, Coffin, P. Jahn, Taplin, Biskey, Thomson, Kienow.
Fourth Row: Jensen, Stone, A. Hanson, Kron, Ellstrom, Nord, Sharp, Wuori.
Fifth Row: Meacham, Schwartz, Brandborg, Norblom, Sauer, Kimball, Dion.

VOYAGEURS

Forestry Organization

President

Robert Sharp

Secretary

Robert Schoensee

Treasurer

Philip Anderson

Philip Anderson
Victor Anderson
Albert Becker
George Biskey
Morley Brandborg
Gordon Coffin
Donald Diessner
Carl Dion
Wilfred Dugas
Clarence Eggen
Robert Erickson
Raymond Ellstrom
Raymond Finn
Alvin Hagen
Howard Hagen
William Hamilton
E. Arnold Hanson
Harvey Hanson
Niilo Haapala
Axel Hupponen
Phillip Jahn
Roy Johnson
Erich Kienow
James Kimball
Richard Kreiter
Edward Kron
Jack Larson
Edwin Lehner
Glenn Liden
Lawrence MacMaster
Roger Meacham
Melvin Menge
Earl Nelson
Eugene Nelson
John Norblom
Robert Nord
Warren Nord
Vincent Olson
Leonard Orvold
Howard Post
Harold Roussopoulos
John Sauer
Robert Sharp
Robert Schoensee
Roman Schwartz
Thomas Schrader
Emil Stone
Walter Thalbert
James Taplin
F. M. Thomson
Eino Wuori

First Row: A. Hagen, B. Peterson, Kimball, A. Nelson, Joranson, Brandborg, Lorenz, Shearer.
Second Row: McMillan, Grafton, A. Hanson, Turnquist, Dickinson, Schroeder, Brink.
Third Row: Cherwynak, Terch, Bensend, Engstrom, Mead, Biskey, E. Nelson, Kissin.
Fourth Row: Miller, R. Anderson, Schrader, Earle Nelson, Roussoupolos, Taplin, R. Smith, Wood.

XI SIGMA PI

National Forestry Honor Fraternity

Founded at
UNIVERSITY OF WASHINGTON
1908

Local Chapter
DELTA CHAPTER
1920

FACULTY MEMBERS

J. H. Allison
A. J. Bailey
R. M. Brown
E. G. Cheyney
Clyde Christensen
Ralph Dawson
Henry Hansen
Ralph T. King
Ralph W. Lorenz
L. W. Rees
C. O. Rosendahl
T. Schantz-Hansen
Henry Schmitz

ASSOCIATE MEMBERS

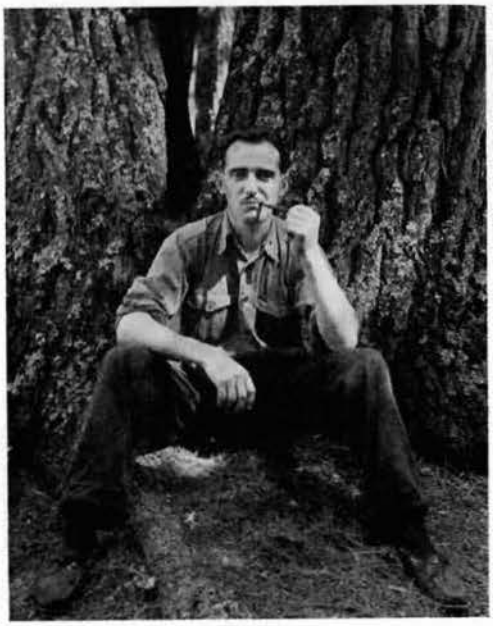
P. O. Anderson
G. M. Conzet
R. N. Cunningham
S. R. Gevorkiantz
J. A. Mitchell
J. R. Neetzel

ACTIVE MEMBERS

Philip Anderson
Roger Anderson
Dwight Bensend
George Biskey
Norman Borlaug
Morley Brandborg
David Brink
Michael Cherwynak
Harry Davis
Fred Dickinson
Albert Engstrom
Cuthbert Grafton
Alvin Hagen
E. Arnold Hanson
Philip Joranson
James Kimball
Joseph Kissin
John Mead
Fred Mueller
Theodore Myren
Alvin Nelson
Earle Nelson
Eugene Nelson
Scott Pauley
Bernie Peterson
Harold Roussopoulos
Frank Shearer
Thomas Schrader
Philip Schroeder
Richard Smith
James Taplin
Lawrence Terch
Clinton Turnquist
Raymond Wood
Robert Zabel

Prominent Alumni

Number One



FRANK H. KAUFERT

All good things are hard to keep and so was Frank. When Dr. Kaufert left the Division of Forestry to take over his new work in the Division of Pest and Disease Control of DuPonts, the forestry students and faculty alike were keenly aware that they were losing a teacher not only well qualified to teach by his broad training and experience, but an inspirational teacher as well. Together with his scholarly and scientific attributes, Frank still possessed all those likable qualities of a good fellow. Furthermore, the students' interest and problems were also his. He was always willing to discuss their personal problems and to give them sound, helpful suggestions. That his presence here did have a pronounced effect on the students was evident when the 1937 "All Forester's Day" was dedicated to him.

Frank started his forestry career in 1925 as a freshman forester. Immediately he established himself as a member of one of the most scholarly triumvirates that ever was graduated from this college. Since he was graduated, he has had a wide range of experience, especially in experiment station work. For a time he worked at experiment stations in the West, South and Lake States. He then returned to the University to major in Forest Pathology for an advanced degree under Dr. Stakman. While working for his degree, he was awarded a European exchange scholarship and spent one year at the University of Halle in Germany.

We wish him the best of success and happiness in his new work, but we like to think and hope that some day Frank will return to these old stamping grounds where he rightfully belongs.

Alumni Section

This, the alumni section, is dedicated to and prepared for the alumni, and the only really bad feature of it is that it does not contain information concerning all the alums. That, however, is no fault of ours. We thank those who have contributed to it, chide those who intended to but didn't, and try to forget those who just plain wouldn't.

CLASS OF 1899

H. H. Chapman is still professor at Yale Forest School in New Haven, Connecticut.

CLASS OF 1904

Martin L. Erickson is Forester for the Resettlement Administration with headquarters at Lisbon, North Dakota.

CLASS OF 1906

W. T. Cox sends us the following short summary of his activities since he graduated:

Was formerly with the U. S. Forest Service. From 1911 to 1924 was State Forester of Minnesota. In 1924 and 1925 did consulting work and made forest and wildlife survey in the Hudson Bay Region for the Dominion of Canada. From 1925 to 1929 organized the Upper Mississippi River Wild Life Refuge for the Biological Survey. Spent 1929-1931 in Brazil organizing a Federal Forest Service for that country. More recently was Commissioner of Conservation for Minnesota, and is now Regional Forester-Biologist for the Lake States Region Resettlement Administration, U. S. Department of Agriculure, with offices in the Court House, Milwaukee.

CLASS OF 1909

Walter M. Moore is at Wright Field, headquarters for experimental work in aviation, for the Army. He tells us that there is one other forester there, a graduate of Syracuse, and a fine fellow too. Walt is our favorite alumnus, for he always pays what the Peavey is really worth: three dollars.

CLASS OF 1910

J. B. Berry is cherry and citrus specialist for the Waverly Citrus Growers Cooperative at Waverly, Florida. He claims that they will ship 800,000 boxes, about equally divided between oranges and grapefruit; but none to California.

Robert L. Deering is Assistant Regional Forester in Charge of Operation for Region 5 in San Francisco.

CLASS OF 1911

David A. Arrivee is Assistant Supervisor of the Indiana Purchase Units, with headquarters at Bedford, Indiana.

J. V. Hofmann is at the North Carolina State College of Agriculture and Engineering, University of North Carolina. He says that the work in the college is going along very satisfactorily. They are getting a game program organized and setting up courses in Game Management.

W. H. Kenety, the General Manager of the Northwest Paper Co. of Cloquet, Minn., sends a terse letter that contained a check for his Peavey but no news of himself or other Minn. alums in that territory: "Subscription —Gopher Peavey per your letter."

CLASS OF 1912

Walter Beyer writes that although his occupation as an executive of a fleet of insurance companies in New York seems a long way from the forestry profession, he has a great feeling of gratitude for the opportunity which was his as a member of the class of 1912 of graduating from a very fine forestry school.

John A. Stevenson is with the Bureau of Plant Industry at Washington, D. C. John complains that the alumni list which was sent to some of you fellows was incomplete. I really should apologize for that list. You see the list was made up by the circulation manager last year, and I was too lazy to make a new one but used his stencils over again; new ones will be made next year.

CLASS OF 1913

Lee Miles, after eight years with the U. S. F. S. in Region 4, bought a couple of drugstores and some sheep; tried journalism, taught machine gunnery to a Mexican Rebel army, was Capt. of Guards at N. E. Federal Penitentiary, now has "settled down" as agent for the Dept. of Treasury Alcohol Tax Unit, out of Wilkes-Barre, Penna.

Gilly Wiggin says that his life centers around a couple of growing boys who think mostly of Minnesota football and of Minnesota as the school to go to. Wiggin says that he is sorry he couldn't accommodate us with much information about other alums because his position is "not conducive to authoritative truths or lies about them." At that he sent us much more than a lot of you guys who didn't even apologize.

George F. Freeman is supposed to be away at sea. Our informant could not say when he will be in port, but included a dollar for George's subscription, so George will have something to read when he returns home.

CLASS OF 1914

Sam Graham sends us his autobiography. It is very interesting and well written so I am passing it along in its entirety.

Summary of publishable activities since graduation:

1. Two years were spent at Cornell getting an M. F. and specializing in Forest Entomology and Silviculture. Attained more notoriety than prominence by living in a tent two summers and a winter in order to make both ends meet, and at the same time avoid a diet of peanuts and bran mash.

2. Two years messed around with odoriferous chemicals which permeated me to such an extent that my chief distinguishing characteristic was said to be a bad smell. On the side I fed cooties, chamber-maided monkeys, and nursed trench fever contracted in the civilian battle of Minneapolis.

3. Three years pursued a Ph. D., finally capturing same while teaching forest entomology to Minnesota foresters. During this period was accused of being a woman hater, but this situation was actually a hang-over from the odoriferous stage preceding, which I was taking steps to rectify.

4. Persuaded Sybil Fleming to work double with me, started to raise a family, and continued to teach about and experiment with forest insects for five years at Minnesota.

5. Transferred activities from Minnesota to the University of Michigan to teach forest entomology and later also forest zoology under the resounding title of Professor of Economic Zoology in the School of Forestry and

Conservation, and Research Associate in the Museums of Zoology, and to conduct research projects in cooperation with other agencies, such as the U. S. Forest Service, Bureau of Entomology, and State Departments.

Acquisitions and accomplishments:

1. Some gray hairs.

2. Wife and four childern—two males and two females.

3. One moderate spare tire just above the waist-line.

4. Surface condition lying between ears and forehead no longer favorable for sustained yield management.

5. Wrote one book which students are required to buy and some do. (Another ten years and enough will have been collected to pay for typing the manuscript.)

6. Published papers useful but generally unused except to amplify my bibliography.

7. House and lot purchased and built just prior to depression, now almost furnished.

8. Automobile which is invariably driven conservatively.

9. Dog, gun, fishing tackle, and other equipment for forest zoological research.

10. Reputation for veracity under certain circumstances.

11. Numerous friends and some enemies.

12. Sufficient accumulation of time on good behavior to justify University in granting sabatical leave next year, which will be spent west of the Great Plains and north of the equator; half year away from Ann Arbor without a job, full year if anyone requires my services.

13. Idea of buying a trailer and going native.

This is rather a long stretch about one alumnus, but it is interesting whether you know the author or not. Incidentally, if any of you other guys had done as well for yourself, we would have given you the same amount of space. Remember that next year.

CLASS OF 1915

Thorwald Shantz-Hansen is still in charge of Cloquet Forest Experiment Station, and is trying to keep the third-year foresters out of trouble each spring.

CLASS OF 1916

Ralph E. Rhoads appears to be the Secretary of the Scott Paper Company at Chester, Pennsylvania, as I deduced from his letterhead.

CLASS OF 1917

Parker Anderson, extension forester at the University of Minnesota, suffered injuries about the face and neck as a direct but somewhat delayed result of his osculatory salute to the Forester's Day Queen, whom he crowned.

CLASS OF 1918

George Hauser, M.D., still pushes them through the line as Assistant Football coach for his Alma Mater.

CLASS OF 1920

Rudolph H. Grabow is Public Relations man for Region 9. He was the principal speaker at the Forestry Club banquet on March fourth of this year.

CLASS OF 1921

L. N. Ericksen is with the Western Pine Association. He is treasurer of the Washington section of the Society of American Foresters this year.

Hubert Persons is now a Redwood Silviculturist at the California Experiment Station in Berkely.

A. E. Wackerman is forester for the Southern Pine Association in New Orleans.

CLASS OF 1922

A. A. (Triple A) **Anderson** is in charge of the Cincinnati office of the Chicago Mill and Lumber Company, where he is busy selling lumber and crating materials to the Crosley Corporation.

R. M. Nelson is now in the Protective Organization of the Appalachian Forest Experiment Station.

CLASS OF 1923

Gunnar Fenger is Chief of the Branch of Operations, in the Regional Office in Milwaukee. He has risen rapidly in the Forest Service and is very well liked and extremely capable.

Otis M. McCreery maintains student morality, as Assistant Dean of Student Affairs at the University of Minnesota.

Arthur L. Nelson is Supervisor of the Ouchita National Forest, headquarters at Hot Springs, Arkansas.

Augustine Streinz is Assistant in Management at the Regional Office, Atlanta, Georgia.

CLASS OF 1924

Harold Berggren is a salesman for Weyerhauser out of Jamestown, New York. He has a son of about three years of age.

Philip H. Bryan is Supervisor of the Kisatchne National Forest, at Alexandria, Louisiana.

D. A. Kribs is teaching in the Forestry Department of the Pennsylvania State College at Mont Alto, Pennsylvania, where the Penn State foresters spend their freshman year. Dave helps guide their faltering footsteps.

Herbert Matturn was transferred to the Ottawa National Forest. (The writer of this bit of news didn't mention where he had been transferred from, and we had no previous record of him. Glad to see your name back in the list, Herb.)

Harold Ostergaard is Assistant in charge of State Forests with the Minnesota Department of Conservation.

CLASS OF 1925

Lynn G. Baumhofer is now Associate Entomologist at the Fort Collins, Colorado, Laboratory of the Division of Forest Insect Investigations, Bureau of Entomology and Plant Quarantine, working on bark beetle surveys and control operations. He is also continuing some of his studies of the pine tip moths.

Howard Blandin is located in Quincy, Illinois, with a paper manufacturing concern. His daughter is now about four years old.

G. Proctor Cooper III is still at East Lee, Massachusetts. We hear that there is now a G. Proctor Cooper IV.

Victor (Squing) **Jensen** is Associate Silviculturist with the Northeastern Forest Experiment Station at New Haven, Connecticut. He spends most of his time at Bartlett, New Hampshire, in charge of an experimental forest in the White Mountains. We hear that he and his wife are planning a trip to Old Mexico in the spring. We learn this from a source other than Vic himself. Vic sent us an envelope containing a check, but no news.

William Maughan is Associate Professor of Forestry with Duke Univer-

sity at Durham, North Carolina. In a recent issue of the Yale Forestry School News, Bill entered the controversy over the northern limits of the range of butternut. He claims to have picked many a bushel of butternuts in the northern end of Carver county, Minnesota. **R. B. Thomson,** who sent us this news, supports Bill in this contention.

Mike O'Connell, who attended Minnesota for about two and a half years, and has been all over the country since then is now registered in the forestry department at Iowa State College. He is in R. B. Thomson's '25 history and policy class, and seems to be more serious minded (according to Thomson) than when he was at Minnesota, but he still likes his laughs.

William F. Peel is forester for the Soil Conservation Service located at Urbana, Illinois. A conflicting report tells us that he is also in Washington, D. C. He is said to be busily engaged in some of the big problems confronting the Soil Conservation Service. Our informant says that he spends much of his time in the field, so that may account for his being also in Urbana, Illinois.

Charles Racey is nursery assistant at the Butternut Nursery on the Chequamegon National Forest.

R. B. Thomson is now enjoying his third year as Associate Professor of Forestry at Iowa State College, Minnesota's nearest rival (Thomson's word, not ours). He handles the courses in forest management, history and policy, forest finance, and forest economics.

Last year R. B. and Mrs. Thomson (also a Minnesota graduate) went to New Haven where R. B. passed his preliminary exams for a Ph.D. at the Yale School of Forestry. From there they went to Europe. They went first to England, then to Denmark and Sweden, spending some time in Sweden visiting relatives and in looking over the forests in southern Sweden. From there they went to Germany and visited the forestry schools at Eberswalde, Tharandt, and Munich. They also spent some time in Switzerland, France and Belgium. Next summer they are planning to attend the Iowa State College summer camp, which will probably be located on the Coconino National Forest near Flagstaff, Arizona.

Walter Wilson is in charge of the Drummond Rehabilitation Project on the Chequamegon in Wisconsin.

CLASS OF 1926

John Coffey is operating an employment service in St. Paul.

Doc Corson is still running the million-tree nursery at Susanville, California. George Sargent says that the stock Doc puts out is very good. Doc is working out the idea of making cleared strips in brush areas with bulldozers and then planting the strips.

Gene Erickson is believed to be still in charge of the La Motte Estate at Millbrook, New York.

A. B. (Abie) **Everts** was transferred from the R. O. in San Francisco to the San Diego office last July as Assistant Supervisor of the Cleveland Forest. He claims that they made the best fire record in the history of the forest, a mere 51 fires, and only 85 acres burned over. Everts was acting supervisor for two months. He claims the long fire season means too much work.

From other sources we learn that Everts passed the cigars last summer upon the advent of a daughter.

Hyman Goldberg is ranger on the Raco District on the Marquette National Forest in Michigan. He had an office job in Milwaukee for a while, but decided that he needed more administrative experience, so asked for, and received, a district.

Lyle Jackson is still struggling valiantly against the numerous diseases that beset the nurseries and plantations in the Allegheny Region. Recently he unearthed an important disease of sycamore which alarmed the City of Philadelphia considerably.

John Kuenzel tells us that two reports have kept him busy at the Columbus office. The first of these, entitled "Decay in Fire Scarred Trees in Mixed Upland Hardwood Stands on the Shawnee Purchase Unit in Southern Illinois" was completed last fall. Since the first of the year **G. A. Limstrom,** '28, has been collaborating with Kuenzel in writing a similar report for the Missouri Purchase Unit.

R. M. Lindgren is with the Forest Pathology Division in Washington, D. C. He is another man who refuses to tell of his own exploits.

R. M. Manuel is associated with the Wilson Packing Company at Albert Lea, Minnesota, according to the letterhead on his stationery.

George E. Sargent is one of the leading boosters of the Minnesota football team out in California. He has been Assistant Supervisor on the Shasta Forest for two years. George tells us that they protect three million acres of forest, but that all but a quarter million acres belongs to the Southern Pacific Railroad. This is one of the worst fire forests; during the past year two other forests beat the Shasta out in man caused fires, but George's still led in total number of fires. Sargent says that they hope to do better next year.

Sargent says that he hasn't much chance of getting back to Minnesota for some time, since he now has a daughter three years old and a son of five months. Thanks for news of the other fellows, George, and also for the interesting letter about yourself.

Gale Whitchurch is teaching forestry at the Susanville Junior College, at Susanville, California.

Roy Chapman is Assistant Silviculturist for the Southern Forest Experiment Station at New Orleans. He is an expert in forest mensuration and was one of the few foresters in the country who was sufficiently well informed in statistics to attend a course conducted by R. A. Fisher, famous Scotch statistician, at Asheville, North Carolina, last summer.

CLASS OF 1927

J. L. Deen is Associate Professor of Silviculture at Penn State. He sent news of several other alums, but forgot himself.

E. P. Duclos tells us that he is with the National Park Service, Branch of Planning and State Cooperation, in charge of the Milwaukee Procurement Office. They supervise sixteen State Park camps, fourteen in Wisconsin and two in the Upper Peninsula of Michigan. Duclos is rather proud of the work accomplished by their camps in providing a greater area for recreational use, as well as flood control work and protection against soil erosion. They will soon be closing the eighth period since Duclos was appointed in June 1933. He says he expects the department to continue after March 31st, but he is not sure

for what period of time, or whether it will be temporary or permanent.

Gerald S. Horton, recently located at Harrisburg, Illinois, as Supervisor of the Shawnee Purchase Unit, has terminated his duties in Harrisburg to accept an appointment in the Regional Office in Milwaukee.

C. E. Knutson also sends no news. He is Forest Supervisor on the Chippewa, at Cass Lake, Minnesota.

Ernest L. Kolbe is doing a big job for the Pacific Northwest Forest Experiment Station. He is conducting Silvicultural studies east of the Cascade Range in Washington and Oregon, managing two experimental forests of 7,500 and 1,000 acres in the Ponderosa Pine type, supervising the Station's arboretum, directing work on three natural areas, and on minor subjects in such fields as phenology, pine heredity, and dendrology. That man does almost as much work as the Alumni Editor of the Peavey.

Carl G. Krueger is on the Shoshone National Forest at Cody, Wyoming, where the ERA, CCC, and insects keep him very busy.

Uno Martilla is Camp Superintendent at Cross River, Minn.

Leslie W. Orr has been on temporary detail in Washington, D. C., for the winter months, but expects to be back in Milwaukee by the first of April. He is in charge of the Lake States Office of the Division of Forest Insect Investigations of the Bureau of Entomology and Plant Quarantine. His research work in the Lake States is done in very close cooperation with the U. S. Forest Service. He tells us that their most important forest insect problems at the present time in the Lake States are white grubs in nurseries and plantations, the forest tent caterpillar in recreational areas in northeastern Minnesota, and the pine form of the spruce budworm in many of the jack pine areas. Much of the research work is conducted at field laboratories at Cass Lake, Minnesota, and at the Mack Lake Ranger Station on the Huron National Forest in Michigan.

A. F. Verrall, impressed by the land of the Creoles, took a job as the Products pathologist at the Southern Forest Experiment Station in New Orleans. His main problems at present are sap stain and building decay control. He is a recent benedict; his wife is a native of Washington, D. C.

Earl G. Wilson is nursery superintendent at Chillicothe, Ohio. Earl has watched this nursery develop from a sand-hill farm to a fine nursery, which is now equipped with a new house, office, and a two story warehouse building.

CLASS OF 1928

Ed. Clark is representative for the National Gypsum Company in Fargo, North Dakota. He says to tell you other grads to give him a ring if you should pass through Fargo. His telephone number is 4276, and the door is never locked.

Oliver Cook is with the Flour City Paper Box Co. in Minneapolis. This company prints The Peavey, and Cook is the man who takes care of all the details that the staff forgets.

Merrill (Maw) **Deters** is instructor at the Michigan State College, Forestry Department, East Lansing, Michigan.

William H. Fischer was assistant Forest Supervisor on the Pisgah at Asheville, North Carolina, until last December, and is now Supervisor of the Hattahoochee National Forest at Gainesville, Georgia.

Ellery Foster summarizes his past as follows: "I came into Washington, D. C., a bushgoing ridge-runner that got his start in the hills around and in Winona County, and polished up in the Ozarks, the Cascades, the Blue Ridge, the Siskiyous, and the gullied hills of Mississippi. Now after two and a half years in Washington, my record is two field(?) trips, one to New York City, the other to Chicago! Something ought to be done about it. I am truly ashamed.

"Another thing, (and I cite this partly to show that I practice what I preach) I asked for—and got—all my accumulated leave and went up on the Main coast with an armful of books on economics and related subjects, a ream of paper, bottle of ink and a pair of swimming trunks. I learned a lot, gained weight—not fat. The only disappointing thing was the people that I met; all dyed-in-the-wool, 1928 model Republicans. My friends can figure it out for themselves whether I was disappointed because the people agreed too fully with me (thus precluding pleasurable argument), or because the gulf between our views was too great to be bridged by enjoyable argument.

"In case anyone is interested in what I do for a living, tell them I am technically labeled "Inspector," and that I am functioning as acting chief of the division of land planning in the U. S. F. S. The division's job is to try keeping the national forest acquisition program (new units and boundary extensions) fitted into the increasingly complex pattern of public land projects. The division also handles certain other work of a land planning nature, but largely on a 'piecework' basis, as assigned the division by the staff."

Ernest J. George is Associate Silviculturist at the Northern Great Plains Field Station at Mandan, North Dakota.

Frank Kaufert, who was until recently on the forestry faculty at the University of Minnesota, is now with the E. I. Du Pont de Nemours Company, Wilmington, Delaware. From all reports he is comfortably settled as an Easterner and has been provided with fine laboratory facilities for his work. He is hoping to be a factor in the development of new and improved treatments for wood and cellulose products in general.

Ray W. Knudson is acquisition assistant on the Clark National Forest with headquarters in St. Louis, Missouri.

Gustave (Steve) **Limstrom,** recently on Timber Stand Improvement on the Clark Unit with headquarters at St. Louis, Missouri, has just returned to St. Paul to work with **John Kuenzel,** '26, on cull and defect data from the Missouri forests. He hopes that the results of this work will give some indication of what the future T. S. I. course should be. He is still a bachelor but some of his Minnesota buddies have worked on him to the point where he is about whipped. (His friends).

Thomas (Tomasso) **Lotti** was recently put in charge of fire weather work at the regional office in Milwaukee.

Paul O. Rudolf was placed in charge of the Lower Michigan Branch of the Lake States Forest Experiment Station with field headquarters at Roscommon, Michigan. This branch supervises planting, fire, and silvicultural research on the Huron National Forest, fire and silvicultural investigations at

Roscommon in cooperation with the Michigan Conservation Department, and planting experiments on the Manistee National Forest. In addition to these duties, a re-survey of older plantations in Minnesota and Michigan was completed under Rudolf's direction, a spruce source-of-seed plot was planted on the Nicolet National Forest in Wisconsin, and a special plantation mortality study was made this fall on the Huron National Forest, all under Paul's direction.

One would think from the above that he wouldn't have time for anything else, but he says that the main event of the year was the arrival of a son, Douglas Paul, on July 24, 1936.

J. N. Van Alstine is still at New Castle, Virginia, on the Jefferson National Forest busy getting a large new district ticking properly. He says that he has untangled some of the hay wire of last year and that he is gradually getting things in better shape. Van says that they have built about 65 miles of metallic telephone line with pole construction, acquired some more land, built a few trails and a couple of miles of road. The rest of the time has been spent fighting fire.

Van's biggest accomplishment of the year was born on September 17, 1936. "His name is James Cunier Van Alstine, a fine boy who is going to be tall like his daddy."

CLASS OF 1929

Dale Chapman of the A. D. Chapman & Company Inc. Chemicals refuses to talk about himself but we learn of his activities from another source. Outside of visiting mills by car, flying to business engagements of one type or another, and working on improvements of his sap stain control treatments, he seems to have little to do. His chemicals have come into wide use throughout the South; he is a familiar figure to most operators, and is one whose visits are welcomed.

Clyde Christenson teaches the Minnesota Foresters about white pine blister rust (Cronartium ribicola, if you've forgotten) and the other tree diseases.

William Hallin is still working on redwood logging studies under Hubert Person at the California Experiment Station.

Thadeus Parr returned from his sojourn in Sweden where he spent much time in chasing bugs, and is now working for a Ph.D. in forest entomology at Yale.

Lawrence B. Ritter sends us a classy little piece of stationery with practically nothing written on it but an address which we already know. It seems a shame that he should waste that entire sheet just to tell us that he encloses a dollar. We thank him for subscribing, but wish that he had sent some news.

Dan Thomas resigned his position as Junior Forester on the Nicolet National Forest last October to accept a position as forester and experimental assistant with the Minnesota and Ontario Paper Company at International Falls, Minnesota.

David M. Williams has been up on the North Shore since May 1933. He has been Ranger of the Temperance district of the Superior National Forest for nearly a year and had a very successful summer, having had only four class C fires during July and August. He expects to be transferred to Ely, Minnesota, where he will have charge of the Vermillion District.

CLASS OF 1930

W. H. Brener is with the Wisconsin Conservation Department, and is located at Wisconsin Rapids, Wisconsin.

Dan E. Bulfer wishes us success in getting out The Peavey and tells us that he is now Assistant Forest Supervisor on the Wayne National Forest, Columbus, Ohio.

Clarence D. Chase passed the greater part of the past year at Eagle River, Wisconsin, as an instructor in the Region Nine Training School. Since the school closed he has been stationed in Milwaukee working in the Division of State and Private Forestry. The Chases celebrated the birth of a son on November 27.

Ralph Lorenz spends what time he has left from working on plant physiology in teaching forest protection to Minnesota Foresters and acts as advisor to The Peavey staff.

Rolland Lorenz still believes "he travels fastest who travels alone." His work with the Division of Forest Pathology has taken him to practically all of the important forested areas east of the Mississippi River with the exception of the Gulf States. He expects to be temporarily assigned to University Farm for the purpose of summarizing his material on diseases in Region Nine.

H. L. Mitchell is now with some CCC camp in Podunk—pardon me, on checking this I find that he is still Assistant Director of the Black Rock Forest, at Cornwall-on-Hudson, New York, and not in Podunk as we have so long believed.

George Olson is still with the TVA Forestry Division, but is now at Norris, Tennessee.

Hugo Pawek is in Raleigh, North Carolina, as Inspector for all state CCC camps.

Irwin Puphal is Ranger on the Lolo National Forest, in Montana. He says that a Ranger's job has a lot of headaches connected with it these days.

Arvid Tesaker says that he has been in Benton Harbor, Michigan, for over a year, as Project Forester with the Soil Conservation Service. His duties include the supervision of field crews in woodland improvement cuttings, planting, building fences, etc., for farmers that are cooperating with the SCS program.

CLASS OF 1931

Clarence E. Anderson has been Staff Assistant in Charge of Forest Management and Timber Sales on the Sumter National Forest in S. Carolina for the past two and one-half years. He claims that the South offers considerable relief from the "freezing winds of Minnesota."

Chas. Beardsley was "given" his own district on the Tahoe Forest, at Forest Hill, California.

Stan Buckman tells us that his time is well occupied looking after the operations of a research laboratory for the American Creosoting Company. Their activities consist of research work in the field of wood preservation and the attendant problems arising from the operation of twenty-five wood-preserving plants in the eastern half of the United States.

Weston Donehower is with the Soil Conservation Service at Bath, New York.

Bernard Huckenpahler is with the Soil Conservation Service at High Point, North Carolina.

Hank Keehn believes in the saying, "No news is good news," for he doesn't send us any.

Alfred Z. Nelson is another man who hates to write. However, we won't complain so long as he has subscribed to the publication.

Clarence E. Olson is with the T. C. B. I. A. division of the S. C. S. To you guys that means Technical Cooperation, Bureau of Indian Affairs, of the Soil Conservation Service. (I wouldn't know either but he had it written out in full at the top of the page). Olson is in charge of the forestry section of the project and his work is all on Indian lands. Although his official headquarters are in Albuquerque, New Mexico, he is in the field most of the time making the necessary surveys for the management of the woodland areas on a sustained yield basis. At the present time he says he is working on the Papago Reservation, where the principal tree species is mesquite. It is valuable for fuelwood and fence posts and is a very important item in the economy of the Indians living in this desert country. Clarence says that he had never thought of handling brush lands on a scientific plan while studying mensuration, silviculture, and other subjects while in school, but he has learned that above all a forester must be versatile.

Ray Osborne was transferred to the Ontonagon District in Michigan where he is district ranger. He admits that last year's Peavey was better than ever before. We hope he will say the same for this one.

Lyall E. Peterson tells us that Bill Jolly, 1933, George Olson, 1930, and himself are still connected with the Forest Management Planning Section of the TVA Forestry Division. Their work, largely falling under the broad head of Forest Economics, includes research over a large area and over a wide variety of projects, but all leading towards the wiser use of forest lands in the Tennessee Valley.

Lyall says that his pet peeve in the past has been county-wide studies of a nature similar to the land economic surveys of the Lake States. He hopes that very shortly one of these surveys will be published and made available to the Minnesota Library.

Lyall says the three Minnesota Tennesseeans are family men, George with a daughter, and Bill and Lyall with sons. Also, they all live in Norris now; the model suburban community situated in the hills, only thirty minutes from Knoxville and seven minutes from Norris Dam. They enjoy electric heat in their homes, a pleasant relief from the soft coal of Knoxville. Recently, the Forestry Division moved its main office to Norris, and is now in the remodeled old cafeteria of Norris Dam construction days. It is now possessed of plywood walls, hardwood floors, a good lighting system, etc., and they now can boast of one of the finest office setups of the TVA.

If Peterson were in the real estate business he might be suspected of trying to work The Peavey for some free advertising. That last paragraph certainly sounds like a prospectus.

Milford Rigg is still single, and is rodding a bunch of former transients (according to Harold Tysk '32), on an ERA job near Phoenix, Arizona. The work consists of construction of a road from an elevation of 3,000 feet to a lookout tower six miles beyond at an elevation of 7,800 feet. The hole around the hill is plenty big enough to dispose of any number of used razor blades. Send your old ones to Fatty.

A. E. Schneider is District Forest Ranger, on the Gunflint District of the Superior National Forest.

D. M. Stewart is working on blister rust control in the Duluth District, Minnesota Forest Service.

Ronald J. Woolery was somewhat worried when he received a letter asking for his subscription after he had

already subscribed. Ron is with Forest Survey, Lake States Forest Experiment Station.

Harry Adams is in Fish and Game work at the Regional Office of the Forest Service in Milwaukee.

Carl Roan (Andy) **Anderson** is technical foreman at Clam Lake Camp on the Chequamegon, in Wisconsin.

Donald H. Ferguson sends this short message in reply to that third letter we sent out. "OK Fella, you win. Enclosed please find." We think that he won; look at the swell book he gets for the paltry sum of one dollar.

CLASS OF 1932

A. F. Laidlaw is bashful, for he refuses to divulge anything about himself, confining his efforts to correct addresses of the other fellows.

Stanley B. Olson is engaged in the duties of Forest Ranger on the Shawnee Purchase unit with headquarters at Metropolis.

Arthur L. Roe is on the Mesaba Purchase unit, at the Sand Lake Ranger Station, Brittmount, Minnesota.

Howard B. Smith is just getting broken in to a Ranger's job. He confesses that he still has to stall someone off occasionally until he can get back to the office and look up the regulations in private. Howie married a Stanford girl almost two years ago and Mrs. Smith takes wholeheartedly to the life of a Forest Ranger's wife. Smith warns anyone who is contemplating coming to Region Three to work, to have a good deal of practical knowledge of grazing, since that field is being given more and more emphasis and is now a large part of any Ranger's work in Arizona or New Mexico. He complains of the weather down there; says that he had to go from Minnesota to Arizona before he had his first experience with snow shoes. Howie sends his good wishes and greetings to the other grads and the faculty from Pinedale, Arizona.

Harold Tysk is endowed with a truly magnificent title, Junior Administrative Assistant, but in spite of such an impedimentia, he claims that he works every day.

Roy Wagner is in Forest Management at the Regional Office in San Francisco.

Frank (Red) **Alexander** is in Chicago with the Wahl Pencil Company.

Edward (Skipper) **Iverson** holds forth on the Manistee National Forest where it is reported he's one of the best dressed rangers in the whole U. S. A.

William Jolly tells about himself in tabular form.

Address: Norris, Tennessee.
Home: 93 W. Norris Road.
Office: 100 B. Forestry Building.
Married; son one and one-half years.
Title: Associate Forester.
Work: Regional Planning with special emphasis on forest industries.

CLASS OF 1933

Donald E. Price sends his good wishes and one dollar from Deer River, Minnesota.

John Rundgren has been engaged in acquisition work in Kentucky, Maine and Virginia, and at present is tangling with a management plan timber survey on the Glenwood Ranger District of the Jefferson National Forest with more of the same in prospect.

Victor Sandberg is weary of the class of football as played in the Rose Bowl, and longs for the better grade

as played at Minnesota. He is enjoying his work in Forest Pathology on the twig blight of yellow pine. Vic went on a deer hunt with Harley Johnson who is the "game man" for the Forest Service on the Kaibab National Forest. Vic and Mrs. Sandberg got their bucks.

Roland Schaar is District Ranger on the Wayne Purchase unit in Ohio. Roland has now gone into the coal business, according to his own confession, and also, according to his letter, he has something to do with peanuts. I am sorry, but I couldn't make out just what it is about those peanuts.

W. D. Betzer is superintendent of the Federal Nursery near Vallenia, Indiana.

CLASS OF 1934

Howard L. (Pete) **Brown** was the first alumnus to subscribe to the 1937 Peavey. He has been superintendent at Day Lake Camp, F-34, on the Chippewa National Forest, in Minnesota, since a year ago last fall.

Clarence M. (Charley) **Evenson** is camp superintendent of Riley Creek Camp, Chequamegon National Forest.

George Herion is out in Arizona with the Soil Conservation service as a Junior Forester. He is engaged in making woodland surveys and in cruising timber. He says that the ultimate goal of all this will be land management plans for the Navajo Reservation.

"Have a baby daughter, age fourteen months, and she won't be a forester. Thank God!"

Ted Holt used to write to **Gilly Wiggin** '13 frequently, but since Ted got married he has neglected his correspondence. Ted is at Baldwin, Michigan, now, with the U.S.F.S.

Wayne Sword is at the Forest Supervisor's Office at Cass Lake, Minnesota, on Forest Management work.

John J. Ahern is Junior Forester at Camp Nelson on the Wayne Purchase Unit in Ohio. John is happily married to a wife who can win automobiles. The Aherns won a new Plymouth 1937 Sedan for guessing the correct football scores.

Roy Carter worked in the Upper Peninsula of Michigan for a year and a half and has recently received a graduate assistantship in the Department of Forestry, Michigan State College. He expects to be there until June, 1938.

Robert H. Clark (Bumblebee), working with the Minnesota State Forest Service at Wilton, recently delivered his buck in person.

John Dobie tells us to send his Peavey to Camp S-57, Arago, Minnesota, if it comes out after April 1. A recent graduate like he is should know that it would violate a sacred tradition if we were to have the Peavey even ready for the printers at such an early date.

Birger Ellertson holds a graduate fellowship at the University of Michigan. He received his M.S. degree last year and now is working toward a Ph.D. degree, majoring in forest pathology.

Arthur E. Ferber is at the Great Plains Field Station, at Mandan, North Dakota.

Norman O. (Rosy) **Nelson** is technical foreman at Riley Creek Camp, Chequamegon National Forest, Wisconsin. Your letter was helpful, Norm, in bringing the Alumni Directory up to date.

CLASS OF 1935

Ed. Panek shares honors with Pete Brown, '34, as being our first alumni subscribers, but we award first position to Brown, because Panek was too tired to write his own letter, but sent his dollar in Brown's. Ed. is Brown's technical foreman in charge of lake surveys.

G. W. Pugsley is Assistant Ranger on the Roubidoux Ranger District of the Gardner National Forest, Houston, Missouri.

We also hear that Pugsley is Assistant Ranger on the Gardner Forest at Ava, Missouri.

Arthur Hawkinson is technical foreman in a colored CCC camp near Poplar Bluffs, Missouri. Do the boys ever get you in any crap games, Art?

Walter R. Jacobson is technical foreman in a transient camp near Piedmont, Missouri. There was a transient camp at Itasca Park in 1935; the manager of Headwaters Inn made the remark, "The transients are crazy, the CCC boys are worse, but those Forestry School boys are the ———" A conflicting report informs us that Walt is a Junior Forester at Camp F-11, Clark National Forest, Ellsinore, Missouri. There's a man with two jobs.

Russell W. Johnson says that he is still cruising around in the wilds near Hoveland, Minnesota, busily engaged in lineal survey and reconnaissance. He tells us that George Forus, '34, the Forestry Inspector, and Marius Morse, '35, the Wild Life Technician, often visit the forest.

Robert W. Merz is technical foreman, working under Superintendent Uno Martilla, '27, at Cross River. Bob says that Martilla is a good boss. Are you reading this, Uno?

Marius Morse is at Brimson, Minnesota, engaged in Game Management work.

CLASS OF 1936

Donald Ambrosen is with the Resettlement Administration at Huntingdon, Pennsylvania, on Game Management work.

Sig Dolgaard subscribes to The Peavey, but he makes no contribution about himself.

Tom R. Evans tells us that he was just about to give up hope, when he landed a job as Wildlife Technician with the Resettlement Administration in Huntingdon, Pennsylvania. He says that he is becoming familiar with an entirely new section of the country and enjoys the work, "even though these screwy meets and bounds surveys do cause many a headache for a Minnesota forester used to section and forty lines." Tom Jr. arrived early in January.

Jim Henderson says that there are very few Minnesota men who make their way to the land of Black and Tan (mostly black) and that the few who do are called "damn' Yankees" and are carefully watched. Jim is employed by the American Creosoting Company in Shreveport, Louisiana. He is engaged in the treating of all forms of wood products, claims that the field of wood preservation is one with tremendous possibilities and one which will provide employment for a considerable number of men who are interested in such work.

Onni Koski and Sulo Sihvonen raised H--l clear through Europe on their way to Africa, where they dress for dinner, skin rubber trees, and slave-drive the niggers. Beth Woolery sailed from New York last December

and will by now have joined Onni at the altar in Monrovia, Liberia.

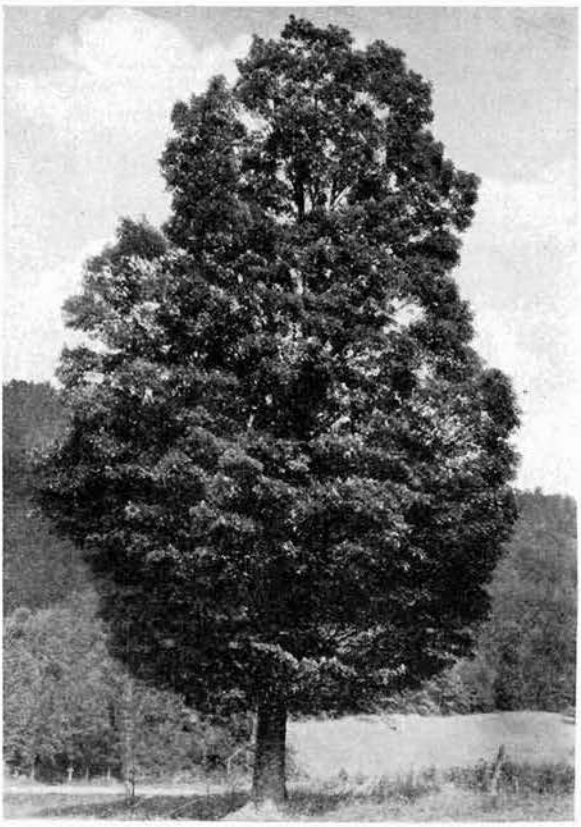
Urban C. (Pete) **Nelson** is Project Forester for the Soil Conservation Service at Spring Valley, Minnesota, in charge of forestry and wildlife work.

Russell Rosendahl is working on the Black Rock Forest, Cornwall-on-Hudson, New York. He tells us that this forest is a privately owned experimental forest, with research particularly in applied silviculture and tree nutrition.

Sulo Sihvonen was just exactly one month late in wishing us a Happy New Year; his letter arrived here on February first. However, his letter was dated December 17, so you see he had good intentions. He is with the Firestone Rubber Plantation in Monrovia, Liberia, West Africa, so that probably explains things.

Yale Weinstein, last year's editor-in-chief, has come back to school for his last quarter, from Cloquet, Minnesota, where he worked for the Northwest Paper Company.

Gordon Wyatt has been working in the Black Hills since last October, at Deadwood, South Dakota; thinning the Pinus ponderosas, and at present doing a little cruising which will probably continue until spring.



Alumni Directory

Aamot, A. Loren '30, U. S. Forest Service, Jackson, Miss.

Ackerman, Wayne, 1104 Federal Building, St. Paul, Minn.

Ackernecht, William '33.

Adams, Earl J. '36, 232 Penn Ave. S., Minneapolis, Minn.

Adams, Harry '32, U. S. Forest Service, Milwaukee, Wis.

Ahern, John J. '35, U. S. Forest Service, Camp F-11, Camp Nelson, Ohio.

Aldworth, Donald '14, 456 Fourth Avenue, New York City.

Alexander, Frank '33, Wahl Pencil Co., Chicago, Ill.

Algren, Verne N. '35, Hutchinson, Minn.

Allen, P. T. '14.

Ambrosen, Donald '36, 304 16th St., Huntington, Penn.

Amidon, George B. '36, Minnesota Forest Service, Itasca Park, Minn.

Anderson, A. A. '22, 3714 East St., Mariemont, Cincinnati, Ohio

Anderson, Carl H. '30, U. S. Forest Service, Duluth, Minn.

Anderson, Carl Roan '32, U. S. Forest Service, Glidden, Wis.

Anderson, Clarence '31, U. S. Forest Service, 732 Meadow St., Columbia, S. C.

Anderson, Frank H. '31, U. S. Forest Service, Duluth, Minn.

Anderson, P. O. '17, 1614 Jefferson Ave., St. Paul, Minn.

Anderson, Robert '30, 1104 Post Office Bldg., St. Paul, Minn.

Anderson, Waldemar '29, U. S. Forest Service, Willamette National Forest, Mt. Hood, Ore.

Andrews, Shirlee '29, 2231 Scudder Ave., St. Paul, Minn.

Anneberg, Robert D. '21.

Arle, Herman '36, Division of Forestry, University Farm, St. Paul, Minn.

Armstrong, J. J. '21.

Arrivee, David A. '11, Assistant Supervisor, Indiana Purchase Units, Bedford, Ind.

Asp, Claude S. '35, Camp S-56, Warroad, Minn.

Backus, Romayne '19, 1953 Cheremoya Ave., Hollywood, Calif.

Baldwin, Donald '35, North Dakota School of Forestry, Bottineau, N. D.

Banson, Robert '18.

Barrett, Wilford '25, Carborundum Co., Niagara Falls, N. Y.

Bartelt, Harry '16, Duluth, Minn.

Baumhofer, L. G. '25, Forest Insect Laboratory, 210 Forestry Building, Fort Collins, Colo.

Beard, F. W. '11.

Beardsley, Chas. '31, Tahoe National Forest, Forest Hill, Calif.

Benson, Arnold O. '10, Forest Products Laboratory, Madison, Wis.

Benson, Eynar '30.

Berggren, Harold '24, Weyerhaeuser Lumber Co., Jamestown, N. Y.

Bergh, Thor '35, Soil Conservation Service, Houston, Minn.

Berry, J. Bert '10, Waverly Citrus Growers Coop., Waverly, Fla.

Betzer, W. D. '34, Superintendent, Federal Nursery, Vallonia, Ind.

Beyer, Walt F. '12, 325 Woodland Ave., Westfield, N. J.

Bjorgum, Eldor '31.

Bjornstad, E. G. '26.

Blage, Rev. Orland C. '26, 5209 46th Ave. S., Minneapolis, Minn.

Blandin, H. M. '25, Quincy, Ill.

Blatter, Paul '28, 835 E. 2nd St., Port Angeles, Wash.

Blodgett, Harvey P. '12, Erhard, Minn.

Boettcher, Paul '30, Grand Marais, Minn.

Bowan, Clarence W. '11.

Braden, Kenneth '14.

Brandborg, Morley F. '36, U. S. Forest Service, Kremmling, Colo.

Brayton, S. C. '20, U. S. Forest Service, Mio, Mich.

Brener, W. H. '30, Wisconsin Conservation Department, Wisconsin Rapids, Wis.

Brewster, D. R. '10, 1315 Bank of Commerce Building, Memphis, Tenn.

Broderick, Martin '16, 439 East Fort St., Detroit, Mich.

Brown, Howard L. '34, Camp F-34, Marcell, Minn.

Brownlie, James R. '11.

Bryan, P. H. '24, U. S. Forest Service, Alexandria, La.

Buhler, Ernest O. '13, 1680 Portland Ave., St. Paul, Minn.

Buckman, Stanley '31, 609 Emery Road, Louisville, Ky.

Bulfer, Daniel '30, 256 Clinton Heights Ave., Columbus, Ohio.

Burnes, J. D. '17, Page and Hill Co., St. Paul, Minn.

Burton, Sidney S. '23, CCC Camp 64-P, Smithville, Okla.

Cahill, Dorothea '32, (see Mrs. Harold Engstrom).

Callinan, Harry '33, Soil Conservation Service, Minn., Zumbrota, Minn.

Campbell, Donald '32, Chippewa National Forest, Cass Lake, Minn.

Campbell, Hugh B. '11, Logging Superintendent, Weyerhaeuser Lumber Co., Klamath Falls, Ore.

Canavarro, D. S. '07, 2736 Huuanu Avenue, Honolulu, Hawaii.

Cann, John '32, 1004 Fourth St. W., Faribault, Minn.

Carlson, C. Homer '27, Winnie Camp, Chippewa National Forest, Cass Lake, Minn.

Carlson, Conrad '32, Chippewa National Forest, Cass Lake, Minn.

Carr, Gordon H. '33, Camp F-27, Deer River, Minn.

Carter, Roy M. '35, Department of Forestry, Michigan State College, East Lansing, Mich.

Case, James '36.

Cedar, William J. '36.

Chapman, A. Dale '29, 7 South Dearborn St., Chicago, Ill.

Chapman, H. H. '99, Yale Forest School, New Haven, Conn.

Chapman, Roy A. '27, Southern Forest Experiment Station, New Orleans, La.

Chance, Jenner D. '15.

Chase, Clarence '30, 829 North Cass St., Milwaukee, Wis.

Chase, Warren W. '26, Box 863, LaCrosse, Wis.

Chesebrough, Herbert S. '23.

Christenson, Clyde '29, Department of Plant Pathology, University Farm, St. Paul, Minn.

Christianson, D. A. '26.

Christopherson, Clifford '24, 1129 West Lawrence St., Appleton, Wis.

Christopherson, Ralph '33, Department of Conservation, State Office Building, St. Paul, Minn.

Clark, Edgar '28, 1261 10th St. N., Fargo, N. D.

Clark, Robert H. '35, Camp S-98, Wilton, Minn.

Clement, Raymond '27, State Office Building, St. Paul, Minn.

Cline, H. Ray '32, Soil Conservation Service, Lake City, Minn.

Clough, Robert '30, U. S. Army, Ely, Minn.

Clymer, William R. '12, 1626 Laurel Ave., St. Paul, Minn.

Coffey, John J. '26, 1731 Laurel Ave., St. Paul, Minn.

Colburn, Floyd '34, U. S. Forest Service, Bena, Minn.

Conzet, G. M. '12, Division of Forestry, State Office Building, St. Paul, Minn.

Cook, Oliver '28, Flour City Paper Box Co., Minneapolis, Minn.

Cooper, Arthur '28.

Cooper, George '25, East Lee, Mass.

Cox, W. T. '06, 1609 Portland Ave., St. Paul, Minn.

Crane, Leo '16.

Crew, John '29, U. S. Forest Service, Schley, Minn.

Cummings, Thos. S. C. '14, Fort Benton, Mont.

Cuzner, Harold '05, Department of Forestry, Laguna Province, Philippine Islands.

Dahl, Ernest '31, Soil Conservation Service, Burlington, N. C.

Danielson, Kenneth W. '36, Intermountain Forest and Range Experiment Station, Ogden, Utah.

Day, Maurice '31, Nicolet National Forest, Laona, Wis.

Deen, J. Lee '27, Yale School of Forestry, New Haven, Conn.

Deering, Robert '10, U. S. Forest Service, Ferry Building, San Francisco, Calif.

De Flon, Rev. L. L. '18.

Dellberg, Robert '35, Box 253, Holdredge, Nebr.

Dennis, Henry M. '15, Tacoma, Wash.

Densmore, Jack '35, Soil Conservation Service, Coon Valley, Wis.

Deters, Merrill '28, 126 Division St., East Lansing, Mich.

Detwiler, S. B. '06, Bureau of Plant Industry, Washington, D. C.

Dingle, Roy H. '35, Soil Conservation Service, Ontaria, Wis.

Dobie, John '35, Camp S-57, Arago, Minn.

Dockstader, Chas. '23.

Dolence, Frank '31, U. S. Forest Service, Duluth, Minn.

Dolgaard, Sigurd, '36, Stokes Camp, Big Fork, Minn.

Donehower, Weston '31, Soil Conservation Service, Bath, N. Y.

Duclos, E. P. '27, 3355 North Cramer St., Milwaukee, Wis.

Dundas, Jack P. '35, Soil Conservation Service, Black River Falls, Wis.

Dunn, F. M. '15, Rapid City, S. D.

Duval, Thure '33, Fernberg Camp, Ely, Minn.

Dwyer, Paul E. '21, St. Paul, Minn.

Eaton, John J. '27, Bemis Bag Co., Cincinnati, Ohio.

Eisenback, Walter '11.

Ellertson, Birger '35, Division of Forestry, University of Michigan, Ann Arbor, Mich.

Elo, Arne '36.

Engstrom, Harold '32, 616 No. 35th St., Lincoln, Nebr.

Engstrom, Mrs. Harold '32, 616 No. 35th St., Lincoln, Nebr.

Erickson, Eugene T. '26, Millbrook, N. Y.

Ericksen, L. N. '21, Western Pine Association, 919 17th St. N. W., Washington, D. C.

Erickson, Herbert '36.

Erickson, M. L. '04, Resettlement Administration, Lisbon, N. D.

Erson, Roy J. '35.

Erstad, Andrew '13.

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Fenger, Gunnar '23, U. S. Forest Service, Federal Building, Milwaukee, Wis.

Ferber, Arthur E. '35, Great Plains Field Station, Mandan, N. D.

Ferguson, Donald '32, U. S. Forest Service, Bena, Minn.

Fischer, Wm. '28, U. S. Forest Service, Gainesville, Ga.

Forder, Milton '30, Chippewa National Forest, Cass Lake, Minn.

Forsberg, Carl '17.

Forus, George '34.

Foster, Ellery '28, 2123 Leroy Place N. W., Washington, D. C.

Frederickson, Samuel '31, Indian Service, Red Lake, Minn.

Freeman, George '14, 131 Hooper Ave., Toms River, N. J.

Freeman, Victor '30, Acting State Forester, School of Forestry, Bottineau, N. D.

Frisby, Samuel '31, Indian Service, Red Lake, Minn.

Frost, Orcutt W. '23, Wood Conversion Plant, Cloquet, Minn.

Frudden, Clyde M. '20, Green, Ia.

Fry, John R. '33, Soil Conservation Service, LaCrosse, Wis.

Gay, Chester '25, Moose Lake, Minn.

George, Ernest '28, Northern Great Plains Field Station, Mandan, N. D.

Gibney, David '33, Deer River, Minn.

Gilles, J. R. '11, Division of Forestry, State Office Building, St. Paul, Minn.

Gjerlow, Atle B. '16, C. C. Mengle Co., New Orleans, La.

Goldberg, Hyman M. '26, District Ranger. Raco, Mich.

Gordon, J. R. '25, Gardner Purchase Unit, Springfield, Mo.

Grabow, Rudolph H. '20, U. S. Forest Service, Federal Building, Milwaukee, Wis.

Graham, S. A. '14, Division of Forestry, University of Michigan, Ann Arbor, Mich.

Grant, Albert '28, Kabetogama State Forest, Camp S-52, Cusson, Minn.

Grapp, Lloyd '21, U. S. Forest Service, Federal Building, Milwaukee, Wis.

Gray, Donald '31.

Graves, Ralph L. '35, U. S. Forest Service, Duluth, Minn.

Griffin, Thos. A. '13, 3529 Humboldt Ave. S., Minneapolis, Minn.

Grigg, Joseph '32, U. S. Forest Service, Grand Marais, Minn.

Hahn, Dewey '35, Soil Conservation Service, Red Wing, Minn.

Hall, Edwin '13.

Hall, Wilson '35.

Hallin, William '29, 331 Giannini Hall, Berkely, Calif.

Halvorson, George '28.

Hamilton, C. L. '11, Weyerhaeuser Sales Office, First Naional Bank Building, St. Paul, Minn.

Hamilton, Hubert '23, McCloud River Lumber Co., McCloud, Calif.

Hansen, Henry L. '35, Division of Forestry, University of Minnesota, University Farm, St. Paul, Minn.

Hansen, Thorwald S. '15, Forest Experiment Station, Cloquet, Minn.

Harris, S. Grant, Jr. '12, Page and Hill Co., Minneapolis, Minn.

Harttupee, Chas. H. '27.

Harvey, Harry '28.

Hauge, Adolph G. '11.

Hauser, George '18, Athletic Department, University of Minnesota, Minneapolis, Minn.

Haven, Ross '33.

Hawkinson, Arthur '35, Camp F-18, Poplar Bluffs, Mo.

Hawkinson, Carl J. '15.

Haworth, Robert '13, Cleveland, Ohio.

Henchel, Norman '13, Zumbrota, Minn.

Henderson, James '36, 2228 Southern Ave., Shreveport, La.

Henry, Leslie '26, Cochetopa National Forest, LaGarita, Colo.

Herion, George '34, Navajo Indian Reservation, Fort Defiance, Ariz.

Hill, Leon '33, Cibola National Forest, Mountainair, N. Mex.

Himebaugh, W. K. '27, Fort Snelling, Minn.

Hoar, Walter G. '24, Couer d'Alene, Ida.

Hodgman, Arthur W. '12, Westport, Ore.

Hofman, J. V. '11, Department of Forestry, North Carolina Agricultural College, Raleigh, N. C.

Holbrook, Edward '35, Intermountain Range Experiment Station, Ogden, Utah.

Holinberg, Ralph E. '27.

Holt, Ted '34, U. S. Forest Service, Baldwin, Mich.

Homola, Jerome '28, Chippewa National Forest, Cass Lake, Minn.

Horn, Arthur '33.

Hovind, James H. '36, District Ranger Station, Wausaukee, Wis.

Horton, Gerald S. '27, U. S. Forest Service, Federal Building, Milwaukee, Wis.

Huchenpahler, Bernard '31, Soil Conservation Service, High Point, N. C.

Hunt, Robley '31, U. S. Forest Service, Duluth, Minn.

Hurley, Eugene '36, Manistee National Forest, Manistee, Mich.

Hyde, Luther '16, Scenic State Park CCC camp, Big Fork, Minn.

Ilg, Robert '36.

Isaac, Leo A. '20, Pacific Northwest Experiment Station, U. S. Court House Building, Portland. Ore.

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Jackson, Lyle '26, Botany Department, University of Pennsylvania, 38th and Woodland Ave., Philadelphia, Pa.

Jacobson, Karl A. '36, University of Maine, Orino, Me.

Jacobson, N. G. '10, 630 Lumberman's Building, Portland, Ore.

Jacobson, Walter R. '35, Camp F-11, Clark Forest, Ellsinore, Mo.

Janelle, Harvey '31, U. S. Forest Service, Duluth, Minn.

Janssen, George R. '26.

Jaskoviak, Raymond '36, Lake States Forest Experiment Station, St. Paul, Minn.

Jensen, Victor S. '25, Northeast Forest Experiment Station, New Haven, Conn.

Johnosn, Harlan '33, U. S. Forest Service, Kanab, Utah.

Johnson, Irwin H. '36, U. S. Forest Service, Ogden, Utah.

Johnson, Oscar '16, Philadelphia, Pa.

Johnson, Russel W. '35, Camp S-62, Hoveland, Minn.

Jolly, William '33, 93 W. Norris Road, Norris, Tenn.

Kaner, Arnold '26, Minneapolis, Minn.

Karkula, Alexander '32, U. S. Forest Service, Duluth, Minn.

Kaufert, Frank '28, E. I. du Pont de Nemours Co., Wilmington, Del.

Keehn, Henry '31, Lewisville, Minn.

Kelly, Miles W. '36, Water and Light Department, Duluth, Minn.

Kelsey, H. B. '26, 2817 17th Ave. S., Minneapolis, Minn.

Kenety, Wm. H. '11, General Manager, Northwest Paper Co., Cloquet, Minn.

Kirtshaw, Dayton '28, U. S. Forest Service, Buffalo, Wyo.

Knight, H. Robert '22, Nickley Bros. Lumber Co., Memphis, Tenn.

Knoblauch, Charles J. '31, Chippewa National Forest, Cass Lake, Minn.

Knudson, Ray '28, U. S. Forest Service, 719 New Federal Building, St. Louis, Mo.

Knutson, Clarence E. '27, U. S. Forest Service, Cass Lake, Minn.

Knutson, Clifford '27.

Kobes, Karl G. '36, University Farm, St. Paul, Minn.

Kolbe, Ernest '27, Pacific Northwest Forest Experiment Station, U. S. Court House Building, Portland, Ore.

Kopitke, John '32, Schley, Minn.

Koski, Onni '36, Firestone Rubber Plantation, Monrovia, Liberia, West Africa.

Koski, Sulo '33, Chippewa National Forest, Cass Lake, Minn.

Krauch, Herman C. '10, Fort Valley Experiment Station, Flagstaff, Ariz.

Krefting, Lauritz, '32, Superior National Forest, Duluth, Minn.

Kribs, D. A. '24, Forest School, Mount Alto, Pa.

Krogfoss, Oswald K. '35, Wellington, Texas.

Krueger, Carl G. '27, Shoshone National Forest, Cody, Wyo.

Kuenzel, J. A. '26, 103 15th Ave., Columbus, Ohio.

Kukachka, Emil '33, Cloquet Valley State Forest, Camp S-51, Brimson, Minn.

Laidlaw, Alan '32, Soil Conservation Service, LaCrosse, Wis.

Laitala, Ero '33, Division of Forestry, State Office Building, St. Paul, Minn.

Lauer, Wilfred H. '35, P. O. Box 82, Winona, Minn.

Lawson, Edward L. '27, Lake States Forest Experiment Station, University Farm, St. Paul, Minn.

Lazzaro, Chas. '32, U. S. Forest Service, Duluth, Minn.

Leaf, George '27, 1101 Hyacinth Street, St. Paul, Minn.

Leffelman, L. J. '24, Resettlement Administration, Montgomery, Ala.

Lewis, Chas. L., Jr. '10, 1255 Oxford St., St. Paul, Minn.

Lidberg, Carl L. '31.

Light, James '29.

Limstrom, Gustaf '28, U. S. Forest Service, 719 New Federal Building, St. Louis, Mo.

Lindeberg, George C. '14, Spencer, Ia.

Lindgren, R. M. '26, 1458 Columbia Road N. W., Apt. 401, Washington, D. C.

Lindgren, Roger, 1000 Hudson Ave., St. Paul, Minn.

Lindstrom, Lorenz '33, U. S. Forest Service, Duluth, Minn.

Litchfield, Wickliffe '25, U. S. Forest Service, Portland, Ore.

Livens, Warren H. '36.

Lorenz, Ralph W. '30, Division of Forestry, University Farm, St. Paul, Minn.

Lorenz, Rolland '30, Bureau of Plant Industry, Washington, D. C.

Lotti, Thomas '27, U. S. Forest Service, Federal Building, Milwaukee, Wis.

Lozinski, Jos. '33, U. S. Forest Service, Portage River Camp, Ely, Minn.

Lund, Peder N. '35, Soil Conservation Service, Lanesboro, Minn.

Lynch, Donald B. '35, Soil Conservation Service, Lanesboro, Minn.

Lynne, Victor A. '24, Camp 134, Nevis, Minn.

Lystrup, Herbert '26.

Major, William J. '36, Eureka, Ill.

Maki, Tenho '30, Intermountain Forest and Range Experiment Station, Ogden, Utah.

Manual, Ronald '26, 514 Grace St., Albert Lea, Minn.

Marks, Elmer '29, U. S. Forest Service, Avery, Ida.

Martilla, Uno '27, Superior National Forest, Grand Marais, Minn.

Martin, Dean W. '11, Department of Internal Revenue, Washington, D. C.

Matturn, Herbert '24, Ottawa National Forest, Mass, Mich.

Maughan, William '25, Duke Forest School, Durham, N. C.

Mayer, Arthur '31, Camp S-76, Merryfield, Minn.

McCreery, Otis M. '23, Administration Building, University of Minnesota, Minneapolis, Minn.

McMillen, John '33, Division of Forestry, University of Minnesota, University Farm, St. Paul, Minn.

Merz, Robert W. '35, U. S. Forest Service, Grand Marais, Minn.

Miles, Clark W. '15, Wyoming National Forest, Kemmerer, Wyo.

Miles, Lee O. '12, Box 281, Wilkes-Barre, Pa.

Miley, Harry '33.

Mitchell, Harold '30, Black Rock Forest, Cornwall-on-Hudson, N. Y.

Mohl, Waldemar '35, 4917 Nokomis Ave. S., Minneapolis, Minn.

Moir, John '13, Administration Building, University of Minnesota, Minneapolis, Minn.

Moore, Irving '32.

Moore, Lee K. '31, 1143 First St. N. W., Rochester, Minn.

Moore, Leonard '32, U. S. Forest Service, Black Duck, Minn.

Moore, Walter M. '09, Box 234, Osborne, Ohio.

Morse, Marius, '35 Camp S-51, Brimson, Minn.

Mortenson, Thomas P. '35, Askov, Minn.

Mueller, A. T. '14.

Mueller, Lincoln A. '35, Nicolet National Forest, Rhinelander, Wis.

Nauman, Elmo '33, 2610 Dwight Way, Berkely, Calif.

Neetzel, John '29, Lake States Forest Experiment Station, University Farm, St. Paul, Minn.

Nelson, Alfred Z. '31, U. S. Forest Service, Washington, D. C.

Nelson, Alvin C. '24.

Nelson, Arthur L. '23, U. S. Forest Service, Hot Springs, Ark.

Nelson, Henry Q. '29, 2225 4th St. West, Duluth, Minn.

Nelson, Leighton '36, 338 State Office Building, St. Paul, Minn.

Nelson, Norman O. '35, U. S. Forest Service, Park Falls, Wis.

Nelson, Ralph M. '22, Appalachian Forest Experiment Station, Asheville, N. C.

Nelson, Ralph W. '34.

Nelson, Stanley C '27.

Nelson, Urban C. '36, Soil Conservation Service, Spring Valley, Minn.

Nerenberg, Ervin '35, 139 Eva St., St. Paul, Minn.

Nermoe, Raymond C. '36, Upham, N. D.

Niehaus, Ted '33.

Niles, Edward '31, Chippewa National Forest, Cass Lake, Minn.

Norgarden, Emil '28, Siskiyou National Forest, Powers, Ore.

Norman, Sigvald '12, Page and Hill Co., Minneapolis, Minn.

Nuffer, Harry D. '13, Michigan State Forest Service, Lansing, Mich.

Olson, Clarence '31, 1749 So. 6th Ave., Tucson, Ariz.

Olson, George '30, TVA Forestry Division, Box 486, Norris, Tenn.

Olson, Herman '32, U. S. Forest Service, Duluth, Minn.

Olson, Stanley '32, Shawnee National Forest, Harrisburg, Ill.

Oppel, A. F. '11, 1523 Branston Street, St. Paul, Minn.

Orr, John Elliott-'12.

Orr, Leslie W. '27, U. S. Forest Service, Milwaukee, Wis.

Osborne, Ray '31, U. S. Forest Service, Ontonagon, Mich.

Ostergaard, Harold '24, Department of Conservation, State Office Building, St. Paul, Minn.

Ostrander, Myron '36, Minneapolis, Minn.

Ostrowski, Francis '21, Waldorf Paper Co., St. Paul, Minn.

Palmer, Rev. Paul '20, 1725 N. W. 27th St., Oklahoma City, Okla.

Panek, Edward '35, Camp F-34, Marcell, Minn.

Parr, Thadeus '29, Yale Forest School, New Haven, Conn.

Parker, Lansing A. '35, Soil Conservation Service, Faribault, Minn.

Paul, Walter '36, Extension Forester, School of Forestry, Bottineau, N. D.

Pawek, Hugo '30, Inspector, State CCC camps, Box 285, Raleigh, N. C.

Pearse, Wm. R. '12, Faribault, Minn.

Peel, William F. '25, Soil Conservation Service, Urbana, Ill.

Pendergast, Earl '18.

Person, Hubert '21, California Forest Experiment Station, 331 Giannini Hall, Berkely, Calif.

Peterson, Harry A. '29.

Peterson, Lyall '31, TVA Forestry Division, Norris, Tenn.

Pettibone, Herman V. '12, Chicago Mill and Lumber Co., Chicago, Ill.

Pillow, M. Y. '24, Forest Products Laboratory, Madison, Wis.

Piras, Stanley '28.

Plant, George '33, Camp S-98, Wilton, Minn.

Porisch, John '30, Chippewa National Forest, Cass Lake, Minn.

Price, Donald '33, U. S. Forest Service, Deer River, Minn.

Probstfield, E. E. '23, Kivasawan Sumatra, care of H. A. P. M., Netherlands, East Indies.

Puglsey, Gerald W. '35, U. S. Forest Service, Ava, Mo.

Pulkrabek, Leonard J. '36.

Puphal, Irwin '30, Missoula, Mont.

Quick, Russell '31, 1166 Ivy St., St. Paul,

Racey, Chas. '25, Chequamegon National Forest, Park Falls, Wis.

Randall, Chas. '31, U. S. Forest Service, Duluth, Minn.

Rathburn, Harold '28, National Pole and Treating Co., Minneapolis, Minn.

Rhoads, Ralph '16, Scott Paper Co., Chester, Pa.

Ridlington, Walter '33, Menomonie Indian Reservation, Menomonie, Wis.

Rigg, Milford '31, U. S. Forest Service, Phoenix, Ariz.

Ringold, Stanley '14, 32 E. 4th St., St. Paul, Minn.

Risbrudt, Clifford '31, Superior National Forest, Duluth, Minn.

Ritchie, William A. '24.

Ritter, Lawrence '29, 108 S. Cleveland Ave., St. Paul, Minn.

Roan, Audrey '29, Gamble Store, Rochester, Minn.

Robinson, Winfield R. '28, Indian Service, Menominee Indian Reservation, Menominee, Wis.

Rockwell, F. I. '06, Marion, S. D.

Roe, Arthur '32, U. S. Forest Service, Brittmount, Minn.

Romnes, Ragner '35, Phelps, Wis.

Rose, Logan '14, Mankato, Minn.

Rosendahl, Russel '36, Black Rock Forest, Cornwall-on-Hudson, N. Y.

Royer, William '30, U. S. F. S., Missoula, Mont.

Rudolph, Paul '28, Lake States Forest Experiment Station, University Farm, St. Paul, Minn.

Rundgren, John '33, U. S. Forest Service, Natural Bridge Station, Va.

St. Amant, Paul '31, Chippewa National Forest, Cass Lake, Minn.

St. Amant, Robert '32, Superior National Forest, Duluth, Minn.

St. Marie, Adrian '14.

Sandberg, Victor '33, 416 E. Carlton, Prescott, Ariz.

Sanders, R. Dale '32, Nicolet National Forest, Rhinelander, Wis.

Sargent, George '26, U. S. Forest Service, Box 277, Mount Shasta, Calif.

Savre, Oliver H. '13.

Schaar, Roland '33, U. S. Forest Service, Athens, Ohio.

Schneider, Arthur '31, Superior National Forest, Grand Marais, Minn.

Schuft, Peter '36.

Schwartz, E. R. '16, Marinette, Wis.

Seaberg, George '32, Superior National Forest, Virginia, Minn.

Seastrom, Paul '34, Nicolet National Forest, Rhinelander, Wis.

Shadduck, Nobel '26, 520 E. 31st St., Minneapolis, Minn.

Sheehan, John H. '22.

Sihvonen, Sulo, '36, Firestone Rubber Plantation, Monrovia, Liberia, West Africa.

Simpson, Chas. '13, U. S. Forest Service, Coeur d'Alene, Ida.

Sheridan, Edgar '27.

Sischo, Paul C. '15.

Smith, Howard '32, Pinedale Ranger Station, Pinedale, Ariz.

Soland, Orlo '32, Oliver Iron Mining Co., Duluth, Minn.

Spink, Harold W. '14, Kansas City, Mo.

Sterba, Webster '31.

Stevens, Raymond '23, U. S. Forest Service, Federal Building, Milwaukee, Wis.

Stevenson, J. A. '12, Bureau of Plant Industry, Washington, D. C.

Stewart, D. M. '31, 219 Federal Building, Duluth, Minn.

Stoehr, Henry '33.

Stoudt, Jerome '31, Superior National Forest, Ely, Minn.

Streinz, Augustine '23, U. S. Forets Service, Regional Office, Atlanta, Ga.

Strimling, Harry '28, 1008 Goodrich Ave., St. Paul, Minn.

Stritman, Harry '32, Fort Snelling, Minn.

Stuart, Alice '33, Northeast Forest Experiment Station, New Haven, Conn.

Sturtevant, Arthur W. '35, 2611 Polk St. N. E., Minneapolis, Minn.

Sunday, C. W. '23, 1321 12th Ave. North, Fargo, N. D.

Swanbeck, H. S. '27.

Swanson, Herbert '18, Appleton, Wis.

Sword, Wayne '34, Chippewa National Forest, Cass Lake, Minn.

Tesaker, Arvid '30, 677 Pavone St., Benton Harbor, Mich.

Thayer, Burton A. '22, 2400 Baume Ave., St. Paul, Minn.

Thiry, Carl N. '36, 433 Fuller Ave., St. Paul, Minn.

Thomas, R. D., Jr. '29, 421 Eighth Street, International Falls, Minn.

Thomson, Roy B. '25, Department of Forestry, Iowa State College, Ames, Ia.

Thorsen, Del W. '36, Box 6, Mena, Ark.

Tilden, Ray '29, 235 Lewis St., St. Paul, Minn.

Tierney, D. P. '06, Castle Rock, Minn.

Tilden, Floyd '23, Lake Itasca, Minn.

Tobin, Paul '13, Lewiston, Ida.

Tofte, Albert '32, Tofte, Minn.

Townsend, Richard '36, Northeast Forest Exper. Sta., New Haven, Conn.

Trench, Paul G. '27.

Tuttle, L. S. '17, Odell-Tuttle Lumber Co., 1645 Hennepin Ave., Minneapolis, Minn.

Tysk, Harold '32, 227 New Post Office Building, Phoenix, Ariz.

Underwood, Clarence '10.

Upton, Nelson '24.

Van Alstine, J. Neil '28, U. S. Forest Service, New Castle, Va.

Verrall, Arthur F. '27, Southern Forest Experiment Station, New Orleans, La.

Wackerman, A. E. '21, Southern Pine Association, Interstate Bank Building, New Orleans, La.

Wagner, Roy '32, U. S. Forest Service, Regional Office, San Francisco, Calif.

Wangaard, Fred '33, Forestry School, University of Washington, Seattle, Wash.

Watterberg, Philip '34, Box 253, Holdredge, Nebr.

Watts, Paul Kenneth '26.

Webb, William L. '35, Camp S-52, Orr, Minn.

Weber, Henry '11, 308 10th St. S., Virginia, Minn.

Weise, Clarence '30.

Wellberg, Ernest '31, U. S. Forest Service, Duluth, Minn.

Weswig, Carl '24, Soil Conservation Service, Chatfield, Minn.

Wheeler, Russ E. '35, 1703 Berkely Ave., St. Paul, Minn.

Whitchurch, Gale M. '26, Junior College, Susanville, Calif.

Whitehill, Bery '28, Black Hills National Forest, Pactola, S. D.

Whiton, Arthur L. '21, Chicago Mill and Lumber Co., Chicago, Ill.

Whitney, Fenton '27, Whitman National Forest, Baker, Ore.

Wiggin, W. H. '13, Robinson Agricultural Experiment Substation, Quicksand, Ky.

Wiljama, Leo E. '34, Vermillion Camp F-56, Tower, Minn.

Williams, David M. '29, Superior National Forest, Ely, Minn.

Williams, Donald '11.

Williamson, Lyman '36, Wisconsin Conservation Dept., Madison, Wis.

Wilson, Earl G. '27, Nursery Superintendent, U. S. Forest Service, Chilichote, Ohio.

Wilson, Robert '12.

Wilson, Walter '25, U. S. Forest Service, Drummond, Wis.

Winkler, Waldemar A. '36.

Wittenkamp, Richard '30, Wisconsin State Forest Service, Rhinelander, Wis.

Wogenson, Adolph K. '29, U. S. Forest Service, Burley, Ida.

Woodford, Reinold '30.

Woolery, Ronald '31, 1104 New Post Office Building, St. Paul, Minn.

Wyatt, Gordon '36, Camp F-20, Deadwood, S. D.

Wyman, H. E. '15.

Young, Paul '11.

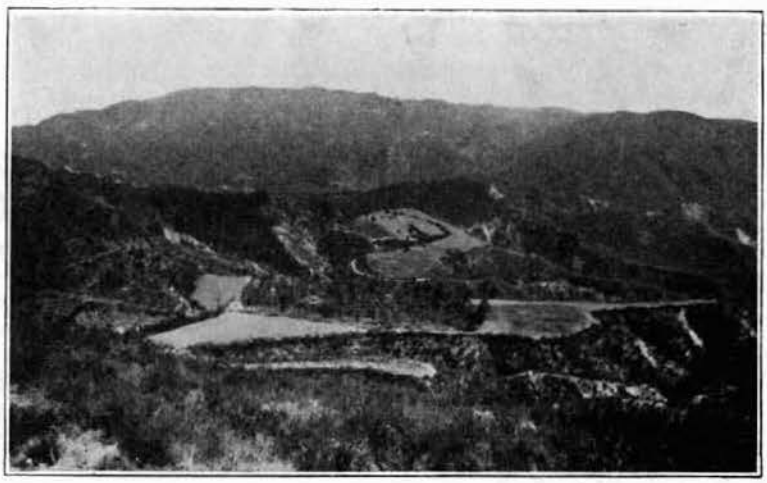
Youngren, P. W. '24.

Zeff, Milton '35, U. S. Forest Service, Kenton, Mich.

Ziegler, Karl '34, U. S. Forest Service, Coldwater, Kan.

Zierke, E. A. '26, 2074 Princeton Ave., St. Paul, Minn.

Zillgitt, Walt M. '32, U. S. Forest Service, Escanaba, Mich.



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